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ARTICLE I.

ACCOUNT of the WILD NORTH-AMERICAN SHEEP.

While the attention of the public is drawn to the domesticated sheep, and new and valuable varieties of this are brought hither from Europe, it becomes us not to be negligent of our native breed.

It is not universally known that there are species of sheep running wild in the woods of North-America. This, however, is the fact; and a dried specimen of one of them was lately brought to New-York by Mr. M'GILLIVRAY. It was made known to Dr. MITCHILL by Mr. SAVAGE, and is now in his Museum. That enterprising artist has made two good paintings from it. This animal was killed in the north-western country, beyond the limits of the United States. It has very much the shape of the Elk, described and figured by Dr. E. H. SMITH, in the second volume of our work, p. 168, except that, instead of the deer's head and horns, it has the neck, head and horns of a ram.

Though a species of Ovis, it is clearly neither the Ovis Ammon, Pudu, nor Strepsiceros, of GMELIN's Linnaean System of Nature. Yet it has been noticed by travellers. Father PICOLO, the Spanish Missionary to California in 1697, mentions such animals as seen by him, and that he had eaten them, their flesh being tender and delicious. (5 Abridg. Philos. Trans. Lond. Part. ii. p. 194.)

From this authority Mr. PENNANT derived what he has mentioned about them in his Arctic Zoology, vol. i. p. 13. He quotes that two sorts had been seen in California; one as large as a yearling or two year old calf, with an head like a stag, and horns like a ram; the tail and hair speckled,

and shorter than a stag's: the other larger, and varying in colour, some being white, others black, and furnished with very good wool. The Missionary Fathers called them both sheep, from their resemblance to them.

The following extract from VENEGAS's *History of California* (vol. i. p. 36, of the English translation), will give something of an idea of this creature. The figure therein contained is not very correct.

"In California are two species of wild creatures for hunting, which are not known in Old or New Spain. The first is that which the Californians, in the Monqui tongue, call a Teye. It is about the bigness of a calf a year and a half old, and greatly resembles it in figure, except in its head, which resembles a deer, and the horns very thick, like those of a ram; its hoof large, round and cloven, like that of an ox; its skin is spotted, like the deer, but the hair thinner; and it has a short tail. The flesh is very palatable, and, to most tastes, exquisite.

"The second species differs very little from a sheep, but a great deal larger and more bulky. These are of two colours, white and black; both well covered with excellent wool. The flesh of these is not less agreeable, and they wander in droves about the forests and mountains."

A more circumstantial account of this animal is contained in the following agreeable narrative.

MEMORANDUM respecting the MOUNTAIN RAM of NORTH-AMERICA. By DUNCAN M'GILLIVRAY. Communicated to Dr. MITCHILL by Mr. SAVAGE, in a Letter, dated New-York, November 24, 1802.

IN the fall of 1800 I was on an excursion, on horseback, through the plains that are situated between the Saskatchewan and Mississourie Rivers, along the rocky mountains, accompanied by Mr. Thompson, a gentleman in the North-West Company's employ, five Canadians, and an Indian guide. Returning back to the north, we followed the course of the Bow-River into the heart of the mountains, with a view of examining them; and on the 30th November, at noon, we halted at the foot of the first ridge to graze our horses, and to ascertain our latitude. At a little distance ahead appeared a herd of small animals, which we took to be a species of the deer which are very numerous in that country. While Mr. Thompson was taking a meridian altitude, I went forward,

with the Indian, to have a shot; and, on a nearer approach, was very much surprised to find, instead of deer, a herd of about twenty animals that were utterly unknown to me. Pleased with the discovery, I advanced very cautiously, keeping myself concealed from their view, to the distance of about sixty yards. Here I halted, and was examining them with all the curiosity that is natural for a man to feel on seeing any unusual appearance, when the Indian, impatient at my delay, and fearful of discovery, fired his gun, and killed a female on the spot. The herd, alarmed by the report, took to flight, and made for the rocks. Angry at the Indian's impatience, I pursued them with eagerness: he followed; and, in the course of the afternoon, we killed four more, two of which were young. I had the satisfaction to shoot a large male, whose motions appeared to guide the flight of the rest. His superior size and enormous horns made him the particular object of my pursuit; and I have preserved his skin, with a view of presenting it to the Royal Society. During the winter I had frequent opportunities of hunting this tribe, which has enabled me to make a few observations on it that may be of advantage to naturalists, towards ascertaining the genus or species of this animal.

The dimensions of the above male, taken on the spot where he was killed (namely, longitude 115 deg. 30 min. W. and latitude 50 deg. N.) are as follow; viz. length from the nose to the root of the tail, five feet; length of the tail, four inches; circumference round the body, four feet; the stand three and three quarters feet high; length of the horn, three and an half feet; and girth at the head, one and a quarter feet. The horn is of the circular kind, proceeding in a triangle from the head, like that of the ram. In short, this animal appears to be a compound of the deer and the sheep, having the body and hair of the first, with the head and horns of the last. The Crees, or Kristianeaux, distinguish this animal by the name of *My-attic*, or the ugly rein-deer. The slave nations, comprehending *Blood Indians*, *Picicans*, and *Blackfeet Indians*, call it *Ema-ki-ca-now*, which also means a species of the deer; but the Canadians, at first sight, named it the *Mountain Ram*.

It is only to be met with in the rocky mountains, and generally frequents the highest regions which produce any vegetation; though sometimes it descends to feed at the bottom of the valleys, from whence, on the least alarm, he retires to the most inaccessible precipices, where the hunter can sel-

240 *Description of the American Mountain Ram.*

dom follow him. His appearance, though rather clumsy, is expressive of active strength, and the nimbleness of his motion is surprizing. He bounds from one rock to another with as much facility as the goat, and makes his way through places quite impracticable to any other animal in that country without wings. I know no animal which encourages pursuit so much as this. In his flight he frequently turns back, and stares at the hunter with a kind of stupid curiosity, which is often fatal to him. This ought, perhaps, to be ascribed to his ignorance of man; these mountains being so horribly desolate that they are but little frequented, except it be by some straggling war-parties of the natives.

The mountain ram, or sheep, though not very often seen, is to be met with, in considerable numbers, in some parts of the mountains. I have, on several occasions, seen herds of twenty or thirty, but generally not more than two or three of them together. Frequently I have been entertained with a view of one of them looking over the brink of a precipice several hundred yards above my head, scarcely appearing bigger than a crow, and bidding defiance to all approach. These frightful situations are quite natural to them. They run up declivities of hard snow or rough ice with facility. Pursuing them in these situations, I have been obliged to cut steps with my knife where they passed without difficulty. Sometimes you think their progress is stopped by a chasm or projecting rock; but if you attempt too near an approach, at one bound they are out of your reach.

The female does not differ materially from the male, except that her size is much less, and she has only a small black straight horn like the goat. The colour and texture of the hair is the same in both, and they are all distinguished by the white rump and dark tail. In other respects the female greatly resembles the sheep in her general figure, and particularly in the timid, good-natured cast of the countenance. In winter they frequent the southern declivity of the mountains, to enjoy the sunshine; the lower regions, and the valleys, at that season, being covered with a great depth of snow.

The flesh of the female, and of the young male, is a great dainty; for my own part, I think much more delicate than any other kind of venison: and the Indians, who live entirely on animal food, and must be epicures in the choice of flesh, agree that the flesh of the *My-attic* is the sweetest feast in the forest.

ARTICLE II.

FACTS and EXPERIMENTS, in answer to some OBSERVATIONS on MERCURY, made by GEORGE LEE, A. M. inserted in the Medical Repository, vol. iv. page 356. Addressed to the Editors by JOSEPH GLOVER, M. D. of Charleston (South-Carolina), in a Letter, dated February 1, 1802.

EARNEST in the pursuit of Medical knowledge, and opposed to error in whatever shape it may appear, whether supported by the bold assertions of genius, whether originating in fancy or founded in superstition, I am induced to relate a few facts and experiments on Mercury, persuaded that investigation is the only road to truth, and that from it alone we are to expect the just decision of a question so interesting.

I shall endeavour to show, 1st. That it is not essential to the theory of oxygen, that an oxyd of mercury, when taken into the system, should be revived to produce its usual effects: 2dly. That certain effects are not to be attributed equally to all the constituent principles of a compound body; and, lastly, That it is to oxygen alone that the several preparations of mercury owe their activity.

1st. Many experiments have been related in favour of Mr. Lee's position, that the several preparations of mercury are not decomposed in the stomach. Facts, however, are not wanting to prove their decomposition on the surface of the body. It is well known that persons labouring under a mercurial action, have had their watches and buttons amalgamated by the revival of the quick-silver. Dr. Girtanner, after relating several facts of this nature, tells us, "The oxyd of mercury, in passing through the human body, parts with its oxygen, and it is to this oxygen alone, which remains combined with the system, that the effect produced by oxydated mercury is owing." Whether the Doctor means, in this case, that the mercurial oxyd is decomposed in the stomach by an acid, or whether he had rather be understood that it is taken up by the absorbents, and gradually decomposed by their action, as atmospheric air is by the lungs in respiration, I shall not attempt to decide; in either case, however, I differ from him, as it is by no means necessary that a mercurial oxyd should be decomposed to produce a mercurial action. Many substances, when taken into the stomach, have been proved to produce their ef-

fects without decomposition; nay, have even been detected in the circulation in their active state. Dr. Hamilton detected globules of mercury in the milk of a salivated woman by slow evaporation.* Does not this at once show that it is not decomposed in the stomach, but enters into the circulation in its compound state?

I do believe that mercury acts as a stimulus *sui generis*, and that it produces its appropriate effects by its action as other stimuli do; and further, that it is oxygen alone which imparts to it its stimulating property. The former I infer from having observed the great similarity which exists between a mercurial action and that induced by some other stimuli; the latter, from its being the only one of the two constituent principles of mercurial oxyds possessing any activity when taken into the stomach, or applied externally to the human body.

Quick-silver is known and acknowledged by physicians to be inert. Dr. Girtanner has told us of his having known many people, who, for years, took a daily portion of it to the amount of one or two ounces, from an idea of guarding themselves from epidemic diseases, but who never perceived any effect whatever from this singular custom.† Does not this at once prove the correctness of the position we have taken?

2dly. The philosopher will not deem it improper that we should attribute certain effects to a particular constituent principle of some compound bodies, when he reflects that others with which it is combined are inert, or produce effects diametrically opposite. What now-a-days would be thought of the chemist who should teach that it is not oxygen which supports flame, but the compound atmospherical air; and that the effect is equally produced by its other constituent principles as by oxygen? Such is the condition to which our author has reduced himself. He tells us, "If certain effects are derived from the use of this acid (meaning the acid of septon), they are to be attributed to both its constituent principles, and not to one alone."

Lastly, Drs. Girtanner and Beddoes have attributed the salivating property of mercury to its combination with oxygen. On the contrary, it has been asserted, that other substances, for instance, camphor and seneka, also salivate. This we readily grant; but does it by any means prove that oxygen will not also salivate? Certainly not. Those arguments must, indeed,

* Barton's Lectures on Materia Medica.

† See Girtanner on the Principle of Irritability.

be the production of no ordinary genius, which still carry plausibility with them, although supported by such negative proof.

Another, and the most plausible objection which has been advanced against the theory of Dr. Girtanner and Beddoes is, "that mercury, in two of its forms, is not oxyded; and, consequently, that its action in them, at least, does not depend on oxygen." The two forms are the blue pill and mercurial ointment, both of which preparations of mercury have been chosen, as fit subjects for a set of experiments, to prove their non-oxydation.

The experiments which were made on the blue pill are first related; the amount of which is, that there was some evaporation induced by the heat generated in the mass by trituration, the loss of weight being fifteen grains. We are next told of a comparative experiment, in which the trituration was continued for an equal length of time on the same quantity of flower and of conserve, and in which (the heat being less) the loss was thirteen grains. I shall forbear making many comments on these two experiments, as the candour of their author has induced him to acknowledge that "the evident impracticability of repeating these triturations exactly in the same way, will easily account for the difference in the results of the two last experiments." This is a confession that he believes the evaporation in each to have been the same; neither do I see how it could possibly have been otherwise, had the trituration been repeated under exactly the same circumstances. Even this difference of weight, however, is adduced to prove the non-oxydation of the metal; but, what an extent of error does it embrace! for although that principle of chemistry may be correct, which teaches that all bodies should become heavier by an addition, yet it has very little to do with the experiments in question. It is supposed, had the metal been oxyded, "the additional weight it would have received necessarily would have rendered the total loss in the first much less than in the last experiment." This too is an error so gross, it requires to be read only to be detected; for it cannot be presumed that the total loss of weight in the first experiment could have been less than in the last, when we recollect that the oxygen with which the metal is oxyded, is not, as the gentleman supposes, an additional substance, which should increase the weight of the mass. The metal received its oxygen from the decomposition of one of the ingredients of the mass; to wit, the syrup, and, consequently, the loss of weight from evaporation could not be expected to be less in the one experiment than in the other.

From this explanation of the gentleman's experiments on the blue pill, it is clear they have proved nothing in his favour. The conclusions, therefore, which have been drawn from them, that the metal is not oxyded in the blue pill, and that its efficacy does not depend upon its combination with oxygen, are decidedly premature.

To do away every doubt on the subject, which even prejudice may suggest, I shall relate an experiment or two, which I presume will prove at once, that the mercury in the blue pill is so completely oxyded, that it is changed in its nature, and becomes an entire new substance both in appearance and properties. A dram of quick-silver, ten grains of rhubarb, and seventeen grains of molasses, were rubbed together until the quick-silver disappeared. The mass on weighing had lost ten grains, which I attributed in part to evaporation; but more to the impossibility of collecting it from the mortar. It is well known, that if quick-silver and water be added together, the particles of the one will have so little attraction for those of the other, that they will not unite; it is also known, that the other component parts of the blue pill, to wit, rhubarb and syrup, are readily miscible with that fluid; from whence it is evident, when the blue pill is rubbed in a mortar with water, if the quick-silver is only divided as the gentleman has asserted, it should be revived in consequence of the syrup and rhubarb, which had served to keep the particles of quick-silver asunder, being now mixed with the water; and again, from the particles of quick-silver having a less attraction for water than for each other.

On the blue pill being rubbed in a mortar with water, and washed well, it was found that the quick-silver was not revived as we should have expected from the gentleman's theory; on the contrary, when the mass had been deprived of the syrup and rhubarb by frequent washings, not only in cold but even in hot water, the quick-silver was found to be unrevived, and fell to the bottom of the vessel in the state of a black oxyd. Here then the nature of the quick-silver is proved to have been completely changed.

The mercurial ointment has also been pronounced not to be an oxyd of mercury. Here I may make a similar objection to the first experiment, which is related to prove this position, that I have just done to an experiment or two on the blue pill; to wit, the determining by weight the oxydation, or non-oxydation, of the ointment by two comparative experiments. Equal quantities of lard were triturated with and without mercury,

for the same length of time, and because the one containing mercury did not lose less of its weight than the other, it is concluded, with more ingenuity than reason, that the mercury is not oxyded. To this I reply, as in the former instance, that the oxygen with which the mercury is oxyded, is not an additional substance, and, consequently, cannot increase its weight; but that it is afforded by the decomposition of the lard, one of the constituent parts of which is oxygen. This is proved by one of the gentleman's own experiments, from which it appears, that mercurial ointment, triturated in a certain quantity of atmospherical air, produced no diminution of that fluid.

The lard which was used not being saturated with oxygen by rancidity, is also adduced as a proof of the non-oxydation of the ointment. I would ask whether lard, the most free from rancidity, does not afford a sufficient quantity of oxygen to oxydate quick-silver; and further, if the gentleman has not found that rancid lard, or, in other words, lard saturated with oxygen, together with ready made mercurial ointment, &c. all tend more speedily to kill quick-silver (as it is commonly expressed), in the forming of mercurial ointment, than substances containing a less quantity? Again, Fourcroy tells us, that if the oxygenated pomatum should not prove of any avail in medicine, it might be made use of to subdue quick-silver the sooner, and to prepare the ointment of it in a fifth of the time that is usually required.* Does it not appear, from these facts, that oxygen has a very considerable effect in the speedy preparation of mercurial ointment; and, moreover, that it acts by oxydating the quick-silver, and rendering it thereby the more easily miscible with lard?

As "a strong argument against the oxydation of mercury," an observation of Mr. Cruickshank, "that the globules of quick-silver, in the best prepared mercurial ointment, may be distinctly seen by the microscope," is related with great gravity. Would it not have been equally to the purpose, had our author informed us, that "if the ointment is not well made, the globules may be discerned still more readily by the naked eye?" The microscope can only bring to our view those globules of mercury which are too minute to be distinguished by the naked eye; it can by no means prove that a portion of the mercury is not oxydated. It is the mere subterfuge of enthusiasm. If mercurial ointment is melted and poured carefully

* See Med. and Phys. Journal, vol. iii. p. 58.

off into another vessel, the greater part of the metal will be found at the bottom in the state of an oxyd.

We are again seriously told that the "corrosive sublimate of mercury is a more complete salt than calomel, on which state alone its superior powers depend." Here we would pause awhile, to know correctly the meaning which is intended. It is surely not the design of the gentleman, at once to dazzle the eye of reason by the new light in which he has placed this subject, nor yet to puzzle our judgments by the ingenuity of his logic. Calomel and corrosive sublimate are both composed of mercury united with the muriatic acid, the former differing from the latter only in containing a less quantity of oxygen. But it is said, that the one is a more complete salt than the other. I would ask, what constitutes it a more complete salt? Is it not its being united with a more concentrated acid, the acidifying principle of which is acknowledged to be oxygen, and which being the only additional substance, must be acknowledged also as the cause of its superior activity?

However paradoxical it may appear, that we should admit the small quantity of oxygen contained in a few grains of corrosive sublimate, as the cause of a febris mercurialis, and yet believe in the oxygenation of the blood by respiration, it is no less a fact. Vital air diluted, and in the state of atmospherical air, is a stimulus to which the lungs are accustomed; its effect, therefore, will not be expected to be such as, when applied in a highly concentrated state, in the form of corrosive sublimate, to the stomach, an organ by no means accustomed to its action. In the one instance it is a natural and accustomed stimulus; in the other, an artificial and preternatural one. That there is a great difference in the violence of action induced by the same stimulus when applied to different parts of our system, is a fact too true to be denied; but why our systems are so constructed, must remain with him alone whose wisdom far exceedeth the narrow limits of human demonstration.

Oxygen, when combined with particular substances in a highly concentrated state, is one of the most powerful stimulants in nature. To it, the common oxyd of arsenic, or white arsenic as it is called, owes its great activity. This was clearly proved in a piece of great merit, read some time since before the Medical Society of South-Carolina, by Joseph Johnson, M. D. from which it appears, that by depriving the common white arsenic of a portion of its oxygen by deflagration, it lost so much of its activity that he could give a grain of it in the form of a pill several times a-day, not only with safety, but even

with advantage, in the cure of intermittents, when other medicines had proved ineffectual. I do not recollect ever to have known of more than an eighth of a grain of arsenic being given at a dose, in an undeflagrated state. It will not, therefore, be denied, that by depriving arsenic of a portion of its oxygen, we deprive it also of so much of its activity; from which we presume, that oxygen is the constituent principle which imparts to it its stimulating property. The method made use of by Dr. Johnson was the burning of two ounces of spirits of wine over a dram of the oxyd of arsenic, which deprived it of so much of its activity as to enable him to give the dose mentioned. By increasing the quantity of spirits of wine, the activity of the arsenic, he has since proved, is proportionably diminished.

ARTICLE III.

A SHORT HISTORY of the YELLOW FEVER which prevailed at Norfolk in the Months of August, September and October, 1801; with some Account of the Diseases that preceded and followed its Appearance. Communicated by Drs. SELDEN and WHITEHEAD, in a Letter to Dr. MILLER, dated Norfolk, July 15, 1802.

THE great influence of the weather and climate over the health of man, especially when combined, in places of crowded population, with the agency of local causes, is universally allowed. At no time has the truth of this observation been more conspicuously verified than during the summer and autumn of the year 1801, in most parts of Virginia, and in a particular manner at Norfolk.

The spring was extremely cold, and the progress of vegetation consequently very slow. The first week in May had elapsed before the trees were completely covered with foliage. The 25th of June had arrived before we began to feel any inconvenience from the heat of the weather, being sheltered from that degree of it, usual at this season, by frequent falls of rain, and a cloudy sky, which had hitherto prevailed. The thermometer had varied from the 70th to the 87th of Fahrenheit, which it had never exceeded, in the hottest part of the day, previous to the last six days in the month of June. But, from this time to the beginning of July, the

weather was serene and intensely hot; yet no sensible effect was observed to result from it, either on the health or prevailing diseases of Norfolk, as it was immediately followed by occasional falls of rain, and that cloudy sky which had obtained so generally in the months of May and June. This state of the weather continued, with little variation, till the 23d of August.

Early in June, numbers began to be affected with intestinal fever, under the different forms of diarrhoea, or of dysentery. In most instances these complaints ran a tedious course, exhibiting symptoms of severity or mildness corresponding exactly with the variations of the weather. Nor was it in Norfolk only that febrile diseases, at this time, seemed to fall chiefly on the intestines; throughout the State similar complaints prevailed; but the attacks were more frequent, as well as more violent, in this town, Richmond and Petersburg. The number of those affected with this form of disease increased gradually as the summer advanced; and though, in some cases, great distress was experienced, and dangerous symptoms sometimes made their appearance, yet instances of death were rare; and the greatest part were neither confined in their apartments, nor compelled to relinquish their ordinary pursuits. The town was, in other respects, during the whole summer, uncommonly healthy; and as those affected with bowel-complaints were generally of the old inhabitants, who had been proof against the attack of the much-dreaded epidemic of the United States, this circumstance was regarded by some as affording reasonable grounds of belief that the atmosphere of Norfolk was free from those causes necessary to the production of yellow fever, and that, for this year, we should escape the ravages of this direful calamity. But these flattering hopes were speedily cut off.

During the whole of the month of August, and particularly after the 23d, some sporadic cases of yellow fever were reported to have occurred; but these were almost entirely confined to the shipping and Marine Hospital, and obtained neither the name of an epidemic, nor caused any alarm or uneasiness among the inhabitants of the town. On the 1st of September, however, the weather became extremely hot, calm and serene. Not a cloud was to be seen, for eleven days, to afford shelter from the scorching rays of the sun, which, for that time, were poured upon us with increasing violence. By a thermometer, fixed in a passage with free circulation of air, eleven feet above the level of the street, and twelve from a

door fronting the south, in a part of the town well ventilated; and not crowded with houses, the mercury frequently rose to 94, and was seldom below 90, in the hottest part of the day, from the 1st to the 11th of September. At 10 o'clock in the night, during the same space of time, the mercury was found several times standing at 90 degrees of Fahrenheit.*

This extreme change of weather, in the beginning of September, was, as might have been expected, followed by one not less remarkable in the form of the diseases of Norfolk. The intestinal fever entirely disappeared, and, by the 7th or 9th of the month, the cases of yellow fever had become so numerous as to deserve the name of an epidemic, and rouse public apprehension; while those persons (as far as our observation extended) who had laboured under the former affection were found generally not subject to an attack of the latter disease. On the 10th and 11th the number of the sick increased greatly; but, on the afternoon of the last of these days, the mercury fell to the 71st of Fahrenheit, and the wind, which had blown from the south-west since the beginning of the month, veered about to north-east, with a cloudy sky, and some rain. But this change did not stop or check the progress of the epidemic: on the contrary, so much more frequent did the attacks of this form of fever become, from the 11th till the 15th of the month, that the mind was strongly impressed with the belief, that the rapid increase of disease had, in some measure, arisen from the sudden change of the weather which then took place, although such as is generally supposed favourable to health. We believe this will generally happen in situations favourable to the generation of yellow fever, when the change of temperature from heat to cold is sudden, but not sufficiently great to check, or extinguish wholly, the seeds of the disease.† Whether the cold, on this occasion, acted, according to the opinion of Dr. Rush, by accumulating excitability, and thereby rendering the system more sensible to the stimulus of the disease; or whether, by checking

* No very accurate idea of the temperature of the atmosphere in which the inhabitants of Norfolk lived, and transacted business, can readily be collected from the thermometer, during the first three or four days after this change of weather commenced. The earth, the houses, and the air contained in them, had been so cooled by the rains and cloudy weather immediately preceding, that several days elapsed before these instruments were completely under the influence of the heat which pervaded the atmosphere of the place. To this cause is to be ascribed the very considerable variations of the mercury observed at this period in Norfolk.

† Vide Rush on the Yellow Fever of 1793, p. 30 et seq.

powerfully sensible and insensible perspiration, and detaining within the body secretions which nature, under the influence of an unusually powerful stimulus of heat, finds necessary to eliminate, this sudden fall of the temperature overthrew the equilibrium and healthy actions of the system, in corrupting, in some measure, the whole mass of circulating fluids, and thereby disturbing and altering the various secretions formed from them.

We shall not here enter into a detail of those causes, unfriendly to health, which may be considered as arising from the situation and state of our town. Such an account would differ but little from that given in the 4th volume of the Medical Repository, p. 329, and to it we refer in this particular. But other, besides atmospherical and the local causes of Norfolk, combined to augment the spreading of the yellow fever. On account of the high price given for American produce in England, all the ships fit for the purpose that could be procured, had been constantly dispatched, during the summer, for that market; so that, in the months of July and August, the harbour was almost entirely clear of shipping, and very few sailors remained in the place. Previous to the commencement of the hot weather in September, several vessels, at different times, had arrived from Europe, with a great number of passengers on board. Those who remained in town had hitherto suffered little from sickness; but, after being exposed to the extreme heat in the beginning of this month, many of them were taken sick; and, being generally, from their indigent circumstances, badly lodged and attended, numbers of them fell victims to the disease. The wind, which, on the 11th, changed from south-west to north-east, brought in a vast number of vessels; so that, by the 15th, our harbour was crowded with ships, chiefly from Europe. The fever now spread rapidly, and increased in malignity; and many of the sailors and passengers of those newly arrived ships were among the number of the sick. It was, no doubt, unfriendly to the health of the seamen to be employed in discharging so many cargoes, near one place, at the same time. To unlock so many reservoirs of air, which had been so long pent up, and rendered impure by the circumstances of a long voyage, was not only prejudicial to the health of those who, in the presence of a prevailing epidemic, were compelled, in some measure, to live in it; but, when wafted into the adjacent parts of the town, by the wind blowing from that quarter, might contribute to augment the ma-

lignity of the disease which already existed there. About the 20th of September the disease was at its height, but it continued to the end of the month, with very little abatement of its violence; the cool weather which came on the 27th producing little alteration, either as to the frequency of the attacks, or the course and severity of the symptoms. It gradually declined during the month of October; and, by the 1st of November, scarce a vestige of it was to be found.

But, in proportion as the yellow fever subsided, the intestinal complaints that preceded its first attack began to reappear. Towards the end of October, many recoveries from the fever were rendered tedious by a dysenteric affection supervening; and some who had resisted the violence of the former, sunk under the wasting influence of the latter disease. The dysentery was, however, confined to no particular class of the community, like the fever; nor was it marked with that character of malignity which often attends it when it appears as an epidemic.

The number of deaths, during the present epidemic, was fully as great, for some weeks, as in that of 1800; although, during the continuance of the fever, fewer died in this than in the former year. The deaths occasioned by the fever we are now describing were evidently greatly augmented by the accidental arrival of vast crowds of emigrants from Great-Britain and Ireland, during the violence of the fever; who, being mostly of the laborious poor, and with large families, without the means of comfortable subsistence, were placed in the most unfavourable circumstances for recovery; and their whole families thus fell a sacrifice to the ravages of the prevailing distemper.

The plan of treatment pursued this year was, in many respects, similar to that adopted in 1800, of which we have formerly given some account. The lancet, however, was more sparingly employed, as symptoms indicating its use seemed less to require it. Calomel, in all cases, was liberally exhibited, both with a view to produce, in the commencement, a full and speedy evacuation, and afterwards, also, in such forms as have been found to bring on most readily a salivation; which, in every instance, with us, as has been often noticed by others, was followed by the certain recovery of our patient. Where topical affections occurred we had recourse to local remedies. Cupping and vesication, when early employed, afforded, in such cases, very frequently, great relief. Neither theory nor experience warranted the

early exhibition of bark; we always deferred it till some change in the febrile symptoms began to appear, and the irritability of the stomach had abated. But, under every form of treatment, numbers fell victims to the disease. In this juncture, being desirous of making every effort that promised any advantage, we had recourse to a remedy we had last year tried in a few cases with some benefit, and now found attended, as far as it was carried, with unequivocal success. This was the liberal affusion of cold water; not on the plan prescribed by some of the writers of the West-Indies, but in a mode similar to that recommended by Dr. Currie, of Liverpool.

The first trials were made on young robust British seamen; and the good effects of the remedy equalled our most sanguine expectation. The pulse often after the affusion of the cold water was thereby reduced thirty strokes in a minute; the burning heat of the skin was greatly lessened, and the thirst, head-ach, and other uneasy symptoms, were much alleviated. The patient generally found himself so much relieved and refreshed after the cold bath, that he submitted, not only without reluctance, but with pleasure, to a repetition of it. If called in on the first or second day of the attack, we first directed a strong dose of calomel and jalap, in order to procure a full evacuation from the bowels; after which the patient was ordered to be carried on deck, with only a great coat thrown loosely around him, and three or four buckets of salt water from the river to be poured on his head and naked body. This operation was repeated, when the febrile symptoms threatened to return with their former violence. Three times a day was usually sufficient. We rarely found it necessary to continue the use of the cold water longer than the fourth day; during which time the bowels were generally kept open by the occasional exhibition of a bolus of calomel.

From the great benefit experienced in the two or three first trials, we proceeded to recommend it with confidence. Of all those patients to whom we had an opportunity of exhibiting this remedy, on or before the second day of the attack, we had the good fortune not to lose one; but after this period, when the fever had begun to subside, without symptoms of amendment, the affusion of cold water seemed to serve only to hasten the fatal catastrophe. In no instance was it used without the exhibition of calomel at the same time, and we might have been inclined to ascribe to the last mentioned medicine the sole merit of the cure that was accomplished, had it not failed, with us, sometimes under the fairest trials.

No disagreeable effect was produced by combining the use of calomel with the affusion of cold water; nor, in a single instance, did the mercury occasion salivation, although the discharge from the bowels was scarcely as great as when it was used alone in the cure of the disease. But, in almost every instance which terminated favourably, when the cure was trusted to calomel alone, without the cold bath; some degree of salivation came on, and the appearance of this discharge was beheld with pleasure, being regarded as an infallible mark of safety.

It is with the fullest conviction of the superiority of this plan of treatment to any we have yet tried, that we venture to record its effects. The subjects of our experiments were those in whom we found the disease to attack with the greatest violence in the commencement, and to act with the most fatal force on their constitutions. We shall attempt no theory of the manner in which the salutary effects of cold bathing in yellow fever are produced, nor venture to recommend it as a certain remedy; but we think that, in the hands of a skilful and judicious physician, it may often prove a powerful auxiliary, in enabling him to combat the fatal effects of that direful calamity we have been describing.

ARTICLE IV.

A curious DISEASE in a WORKING Ox: In a Letter from Mr. WILLIAM STIGNEY, to Dr. MITCHILL, dated Nov. 10, 1802.

AS I am well assured that you are ever fond of every kind of information that may conduce to the propagation of science and of the useful arts in this country, it is with pleasure that I submit to you an account of a singular substance, which has been discovered in the muscles of an Ox, which might, perhaps, be of some advantage to the honest cultivators of the soil, if it should be examined by some of them. They may be rendered thereby, perhaps, more inquisitive concerning the diseases of their flocks, and endeavour to gain a competent knowledge in the business of raising and fattening cattle.

During my residence at a farm-house, in the interior of Orange county, New-York, last January (1802), the man of the house, on butchering an ox, had the curiosity to call me to witness the situation of a thing which he called a phenomenon

in nature. On parting the shoulder from the neck he discovered a large tumour, of an oval figure, buried in the portion of the neck which lies below the fore-part of the left shoulder. On cutting out the tumour, we made particular search for a passage, which we supposed there might be leading from the first passages, or from some external part into the tumour, but could not discover the least passage whatever. Upon opening the tumour we found it to contain nearly a pint of a species of dung of a soft consistence, similar to what is sometimes found in rotten logs. After extracting the dung, we proceeded to examine the bag, which was of a strong muscular consistence: its internal surface was lined with a tough skin, thinly covered with whitish hair about an inch long. Upon my making some inquiry concerning the ox, the gentleman informed me, that he had been accustomed to the yoke for three or four years, and that he had been an uncommonly strong, active ox, for a considerable time, but at length he became so dull and stupid, that he was no longer fit for service; that he had been feeding the ox about a year, in order to render him fit for market, but he found it almost an impossibility to fatten him; the reason of which he supposed must have been the tumour in his neck, though he had never known the ox to receive any wound or have any disorder whatever. I must assure you, Sir, that I was at a loss to account for such a quantity of filth being collected and remaining so long in the flesh of one of the most healthy kind of animals in the world. My thoughts, on the subject, were various and unsettled. Perhaps there might have been a rupture of the alimentary canal, and a part of the aliment have found a passage into the loose flabby flesh which composes the parts of the neck below the shoulders, and thus have formed the tumour; after which the rupture of the canal, and the passage, might have healed up, and left the filthy matter confined within the sack: or, as the ox had been accustomed to the yoke, the bow, by long pressure upon the sides of the neck, might have wounded the muscles so as to cause an open abscess, where filthy matter might have collected, and the surface of the sore have closed so as to remain undiscovered. However, as my ideas on the subject are only conjectural, and by no means conclusive, I beg leave to submit the subject to those persons who are able to discover the secret operations of nature, in the animal and vegetable world, and to teach her invariable laws to the meanest capacity; and more particularly to those gentlemen who have appropriated a part of their attention to the business of raising stock, who are ac-

customed to observe the diseases which are common among cattle, and to apply some remedy for their removal. I take the liberty to refer the subject for their investigation. Could not the tumour have been discovered by feeling carefully along the neck of the ox, and have been taken out by dividing the integuments, without endangering the life of the animal, and he have been restored to his natural activity, to the profit and benefit of his owner? Would it not be beneficial to the community, if the physicians and men of observation, in the different parts of the continent, should transmit, in written documents, to some one of the established Medical, Philosophical or Agricultural Societies, a true history of every new and uncommon disease, which may happen within the bounds of their knowledge among the human species, or among those animals which have become a necessary support to the ease and happiness of the human race? If they should give an accurate account of every discovery made in the various branches of agriculture, such as gardening, orcharding and vineyarding; also of raising and fattening domesticated animals, with an account of the remote and proximate causes of the diseases which are common to man and beast, in their respective cities and townships, it would add eminently to our mass of useful knowledge. Should the man who traverses the unfrequented desert, in pursuing the chase, give a description of all such springs of water, plants, shrubs, and roots, as are not common in the inhabited parts of this extensive country, this would also be a valuable addition. When the like information is collected from every part of this new and extensive country, and when the man of common genius is stimulated, by the genuine love of science and liberty, to seek and perpetuate his own safety, with the happiness and liberties of his fellow-citizens, by extending every kind of information which may come within the sphere of his knowledge, will there not appear an extensive field yet to be explored by the Naturalist, the Botanist, the Chymist, and the man of leisure?

I have the satisfaction to be,

With sentiments of esteem,

Yours sincerely, &c.

WILLIAM STIGNEY.

ARTICLE V.

REMARKABLE CASE of PHTHISIS PULMONALIS, *wherein a profuse spontaneous Hæmorrhage seemed to be useful: In a Letter from Dr. TRACY, of Norwich (Connecticut) to Dr. MITCHILL, dated July 16, 1802.*

IN the month of April, 1801, I was requested to visit Miss B. a young female aged seventeen years, residing in the vicinity of this town, who had been for some time previous in a debilitated state of health, which, rather from its continuation than its apparent formidableness, had created some anxiety in the minds of her friends, who now had become solicitous for my advice. On visiting the patient, I found her of a delicate organization, with a clear skin and florid complexion, and narrow chested, with elevated scapula; light blue eyes, and pupils more than ordinarily dilated, with that pearly transparency of the cornea, which is usually observed in phthisical habits. On examining the complaints of the patient, I found she had been for some weeks previous affected at turns with slight fever, a hecking cough, and pain in her right side, often extending to the shoulder point, and erratically affecting the thoracic region; her respiration was quick and much accelerated by exercise. On examining her pulse, I found them frequent, with the shortness of stroke which so peculiarly characterizes a hectic diathesis. On a critical examination of all the symptoms attending the case, I became fully convinced that it was an incipient *phthisis pulmonalis*; probably arising from a tuberculous state of lungs, which would terminate fatally. Under this impression I suggested to her friends my opinion of the nature of her case and its probable issue. At their request, though but with little confidence that any system of treatment I could adopt would obviate its fatal tendency, I undertook the charge of the patient. The practice I adopted was repeated though small bleedings, a mild mercurial deobstruent course, combined with a nutritious though bland diet, with gentle exercise, and mild opiates at night. This method was pursued for two months with regularity, but without any apparent benefit; the patient evidently lost ground, and at the expiration of this period, discovered the most unequivocal evidences of a fully established *phthisis*; her cough had become urgent and very distressing at night, except suspended by opiates. She now had daily rigors, followed by

exacerbations of fever, and colliquative sweats at night. Her evening paroxysms of fever were attended with that circumscribed, though highly *oxygenated* tinge of the cheek, which is so peculiarly characteristic of a full established *hectic*. Her respiration was short, with increased quickness and tension of pulse, and great prostration of strength. With symptoms so portentous, but small hopes of restoration could be indulged; but wishing to gratify my patient and her friends, by making every additional medical effort that might be safely adopted to remedy the complaint, I omitted the former practice, and adopted the use of the *digitalis*, in the form of a saturated tincture: this she used some weeks; but no apparent good effect arising, and it exciting great nausea, with a vertiginous affection of her head, I was induced to omit its further use. In the room of which I substituted the *kali sulphuratum*, combined with *carbone* agreeable to the direction of Dr. Garnet: this, on being used some time, failing to produce any visible good effect, and being very offensive to her stomach, was omitted. The routine of *hectic symptoms* still continued, and clearly evinced the second stage of the disease to be fully established. She by this time had become much emaciated, and so weak as to require assistance in walking. I now with her friends abandoned all hopes of her recovery, and recommended a mere palliative practice, consisting of opiates, with cordials and mild stomachics. At this period, when hope, the usual though insidious attendant of the complaint, had deserted her, an *hæmorrhage* from the nose (*epistaxis*) took place, which continued, with little intermission, for sixty hours, notwithstanding every usual medical effort was made to check it, and which finally seemed alone to yield to the great exhaustion of the vital fluid. The patient, at a very moderate computation, must have lost at least six pounds of blood during the continuance of the hæmorrhage, exclusive of one pound which was drawn from the foot during its continuance. So great a loss of blood necessarily produced an extreme increase of debility, with constant *deliquium animi* on attempting to arise in bed, for several days, and seemed to portend a speedy dissolution. Under these new and threatening symptoms, I was convinced that the tonic and stimulant medicaments had become necessary in the case, and I adopted the liberal use of bark, with the elixir vitriol, and wine, combined with a nutritious animal diet. Here I ought to premise, that at the termination of the hæmorrhagy, the tense pulse which had marked the complaint during its former progress, had remarkably subsided, they having be-

come softer, with less frequent vibrations; the respiration was also fuller, and performed with much more ease than in the antecedent state, with a material abatement of cough. This mode of practice was steadily persisted in, with the most promising prospects; the rigors and exacerbations of fever subsided, the nocturnal sweats diminished, and the cough wholly disappeared; and although the patient for several months continued very languid, still a gradual amendment was visible, with a steady abatement of the hectic symptoms. At this time the subject appears in good health, and is as capable of undergoing fatigue, in the domestic concerns of a family, as is usual for young females to practise.

Aware that many cases of *chlorosis* in young females, which have terminated happily, have been mistakenly pronounced, by their attending physician, to be true cases of *phthisis*, I have been more minute in describing the leading symptoms which attended this case, and trust it will appear to every well informed mind, that the *diagnosis* of an exquisitely formed *hectic* decisively marked the complaint; and I feel it incumbent to add, that the essential symptoms of *chlorosis* at no period existed during her sickness.

How justifiable an imitation of this violent, though salutary effort of nature might be in similar cases, which so usually baffle our art, is a question that merits mature consideration; but on this subject might it not be admissible to adopt the sentiments of an ancient father in physic, when he says, *melius est anceps remedium quam nullum*?

ARTICLE VI.

An ANALYTICAL DESCRIPTION of certain STONY CONCRETIONS (Phosphates of Lime), coughed up from the Lungs, by JOSEPH SHILDIGGER, a Patient in the New-York Hospital, with Practical Remarks on their Formation. By M. LE BARON DE CARENDEFFEZ. Read before the Physical Society of New-York, October 6, 1802.

THIS man was by trade a stone-cutter, and was admitted into the hospital with phthisical symptoms. He had great difficulty in breathing, violent cough, expectoration of pituitous and purulent matter, sometimes mingled with blood, considerable emaciation and night sweats. He also frequently brought up small stones, which have amounted, by estimation,

to more than two hundred. In proportion as these have been voided, his symptoms have been relieved. A suspicion had arisen that these stony concretions were formed from the dust, inhaled while he was at work in shaping quarry-stones, by his mallet and chisel, for the purposes of architecture. A parcel of these hard substances which he had spit up, having been given by the patient to the attending physician, and obligingly put into my hands for examination by Dr. Mitchill, I take this opportunity of communicating to the society the result of my inquiries.

These morbid or preternatural calculi were of irregular shape, very hard and of a greyish or pale slate colour.

When subjected to the operation of acids, both vegetable and mineral, for some time they became white, and seemed to be softer as they lost their grey colour, which appeared to be derived from a glutinous slime.

Treated by watery solutions of alkalies, both in their caustic and carbonated states, this glutinous substance was not decomposed, but separated, dissolved, and converted into a whitish compound resembling soap.

Some of the concretions were then mixed with an equal weight of carbonate of soda, grown dry by spontaneous efflorescence, and exposed to the heat of a reverberatory furnace, to determine whether they were of a silicious nature. But nothing of a vitrifiable nature was observed. Failing thus to obtain any kind of glass, I concluded they contained no silicious ingredient. The crucible then being taken from the fire, cooled and inspected, I was surprised to find the concretions in a heap, and suspended, as it were, in my crucible, without having undergone any change of their original figure, and without manifesting the smallest signs of vitrification. At the same time the whole inside of the bottom of the vessel was turned to glass, by means of the silicious matter which, as is well known, is a constituent ingredient of the Hessian crucibles which I employed.

On taking them from the crucible I found they had become brittle, and could easily be rubbed to pieces between the fingers: the gluten had been consumed, and they had become as white as in the former experiments.

On weighing them again, they were found to have lost scarcely three grains of their original weight; a loss which I ascribe to the animal gluten which connects, and, as it were, cements the particles together.

Some of the calcined matter being then reduced in a mor-

tar to a very fine powder, I first diluted it with a little water, and afterward poured on it about two-fifths of its weight of good sulphuric acid. Having been mixed well, they were exposed, for three hours, to a moderate sand-head. On examining the mass, I found it thick, viscous, and adhesive. I diluted it with water, and it reddened the tincture of litmus, and possessed a sour but agreeable taste. This was easily distinguishable for being an acidulous phosphate of lime; 1. By its dissolubility in water; 2. By its precipitating with lime-water, a regenerated insoluble calcareous phosphate, which was not decomposable by alkalies; 3. By its forming, with ammoniac, soda, pot-ash and magnesia, as many particular phosphates. These phosphates precipitated a true phosphate of lime from the mixture, by depriving it of the surplusage of acidity; and from this surplusage only these new phosphates were formed. To this excess of phosphoric acid, the mass owed its solubility and fluidity, for as soon as it lost this superfluous portion, it became an insoluble precipitate.

The oxalic acid acted upon this acidulous phosphate in a much more powerful manner. It decomposed it entirely by attracting its calcareous basis. Therewith it formed immediately an insoluble oxalate of lime. This fell to the bottom, while the liberated phosphoric acid swam in the liquid above it. I washed this precipitated oxalate of lime in water until it became tasteless, and then, on decomposing it by the carbonates of potash and soda, obtained carbonates of lime.

The sulphate of lime, formed by a decomposition of a part of these concretions, was purified and separated from the acidulous phosphate of lime by repeated washings. Being unable to decompose this earthy salt by carbonates of potash, soda, or ammoniac, I succeeded in forming an hydro-sulphure of lime by means of powdered charcoal in a sufficient heat. From this I obtained the sulphur by means of vinegar.

The result of all these experiments is, *that these pulmonary stones or concretions are true PHOSPHATES OF LIME.*

Their formation is owing probably to the great quantity of this calcareous salt carried into the system, with both vegetable and animal food. In order to keep it dissolved in the fluids, the constitution ought to be supplied with a surplusage of phosphoric acid. When there is a deficiency of this phosphoric menstruum, these concretions are formed in different parts of the body. Hence, when there is no excess of phosphoric acid in the blood and secretions, we so often find concretions similar to these in the kidneys, in the bladder, in the bronchia, in the lungs, and in other places.

There is every reason to believe, both from the probability of the thing, and from chemical experiments, that such concretions as these would not be formed, if there existed the requisite superabundance of phosphoric acid. For if this was present in sufficient quantity, it would soften, dissolve and hold in solution the neutral earthy salt in all cases, after the same manner that the great quantity of it in healthy urine is kept dissolved and suspended.

The oxalic and sulphuric acids seem to have a powerful agency in totally loosening the compages of bones, and of disposing them to be dissolved in water; while the other acids, of whatever kind, though they may appear to dissolve them, do no more in fact than separate the particles, which, instead of undergoing solution, are precipitated in the form of a white and granulated power.

All these facts which I have seen and derived from my own experience, in submitting these concretions to the action of different acids, and all the others which I have gathered from experiments made on calculi of the kidneys and bladder, convince me that most reliance is to be placed on THE OXALIC and PHOSPHORIC ACIDS for destroying these terrible concretions. While the *nitric* and *muratic* acids recommended by Messrs. Fourcroy and Vauquelin, do not act so powerfully upon these calculi, are more disagreeable to the taste, and are more stimulant upon the living parts, without having a proportional action upon the stones. On the other hand, considering that the *oxalic* and *phosphoric* acids may be exhibited in greater quantity and higher concentration than the others, I think them highly deserving the attention of physicians: I therefore recommend them to their notice and trial, as promising to do much in the cause of humanity, both in the form of drinks and injections.

ARTICLE VII.

DESCRIPTION of a remarkable Species of INTESTINAL VERMES: Communicated to Dr. MILLER, by JAMES S. STRINGHAM, M.D. Professor of Chemistry in Columbia College, and President of the New-York Physical Society.

THE relation of occurrences, which from our reading and observation, we find seldom to have presented themselves to the eye even of the most experienced medical practitioners, is a duty incumbent as it is important. It is by this means that

the limits of our inquiries are extended, and that we are prepared to encounter events, the existence of which we might never have suspected; till, by a fatal termination of the disease, dissection points out to us the presence of circumstances, of which, had we been previously aware, a different plan of cure would have been adopted, and the life of the patient probably preserved. This is a mode of acquiring experience truly humiliating; but how is it to be avoided, unless every physician, while he derives benefit from the observations of others, endeavours, at the same time, to contribute his mite towards the promotion of general knowledge, by a careful and faithful delineation of such particular occurrences as he conceives to be new and interesting? Under this impression I feel myself impelled to offer to your consideration the history of a case, the singular termination of which excited no small degree of surprise in all who witnessed it.

About nine months ago I was called upon to visit a lady in this city, who had been for some time in ill health. I found her somewhat emaciated. She had little or no appetite; complained of almost constant pain in the breast, near the xiphoid cartilage of the sternum; she had no cough; respiration was perfectly free and easy. I took from her a small quantity of blood, ordered a cooling purgative, and put her upon the use of the digitalis, with a light diet. This plan was persevered in for some time, till she took forty drops of the tincture, three times a day; beyond this it affected her head and stomach. Finding however that this did not produce the desired effect, I added a blister, which I kept discharging for several weeks. By this her complaints were so much relieved that I considered any further attendance as unnecessary. My patient went out of town, and I heard no more of her for several months, when she again sent for me. She informed me that she had continued free from her pain for a considerable time after the blister had healed, but that it had again returned, and as she thought with increased violence. The complexion was pallid; her pulse weak and irregular; her appearance much more emaciated than when I saw her last. I again put her upon the same treatment, and again the blister relieved her pain: the suspension however proved but temporary; her former symptoms returned; in addition to which she also complained of great pain and soreness in the abdomen. I treated her upon the plan generally adopted where such indications exist, but without the least success; the pain in the abdomen particularly became extremely urgent, and she frequently told me, that when riding the smallest irregula-

ity of motion in the carriage produced sensations almost insupportable. Her stomach had become so irritable, that every species of food was rejected as soon as swallowed; a constant tenesmus supervened, although she voided no *fæces* unless assisted by cathartics or injections.

Finding every effort to relieve my patient ineffectual, that on the contrary her disorder appeared to be increasing, and her strength rapidly declining, I began to apprehend that death alone could alleviate her sufferings: I therefore entirely confined myself to palliatives, the principal of which was laudanum. She continued in this miserable state of existence several weeks, during which time the only moments of ease that she experienced were those passed in insensibility. On one of my morning visits to her, while in this situation, she told me that she was convinced in her own mind, that her complaints were kept up by some animal within her; that she could distinctly perceive its motion, particularly if she fasted for any length of time, and that she was compelled, by the uneasy sensations it produced in her stomach, to endeavour to take food although she had no appetite for it, after which she felt greatly relieved. Supposing that her mind, enfeebled by the long-continued sufferings of her body, had become impressed with some of those incredible fictions, which report snakes and different kinds of reptiles to have become inhabitants of the human system, I at first ridiculed the idea; but finding that she was obstinately pertinacious of her opinion, I was under the necessity of promising to give some medicine which would dislodge the animal, should any such exist. For this I gave her a bitter infusion to be taken in the morning early, and at night a drastic purgative; which plan she was to continue every second day till she had taken three doses of each. I called to see her on the morning after she had taken the second dose; I was surprised to find her appearance uncommonly cheerful, and at her first salutation to me, "Doctor, I shall yet get well." On inquiring into the cause of this sudden change, her husband informed me that she had voided a considerable number of animals, of what kind he could not pretend to say, as he had never before seen any thing like them. The pot was shown me, in which I discovered a considerable number of substances which I did not hesitate to pronounce animalcular. The nurse informed me that the medicine had operated very severely on my patient, and that she still continued to experience its effects. I requested her to convey another pot into the room, telling her that I should remain some time below stairs, and that if the medicine should again

operate while I continued in the house, it was my wish to see what was evacuated. I had not waited long before my curiosity was gratified; scarcely any fæces were to be seen; the excrements consisting almost entirely of these substances, some of which I had put into a bottle filled with spirits, in order to examine them more particularly at my leisure. They were about three fourths of an inch long, and to the inferior part of the body of each were attached a considerable number of legs. On first view I thought that they were separate parts of several large worms, and that what appeared like legs, were nothing more than the different laminæ or filaments of the skin, separated by maceration. But, on a closer examination, I rejected the opinion, because the back of these animals did not appear to be covered by skin, but by a firm cartilaginous substance; there was likewise an uniformity of appearance and structure, which is not observed in filaments of the skin thus separated, viz. they were vesicular, each resembling a distinct sack, distended with a fluid, colourless and transparent. But as it is impossible to convey any distinct idea of these animals merely by verbal description, I transmit to you a drawing of them, taken by Dr. Alexander Anderson, of this city, which very exactly represents their real appearance: the original I still retain in my possession, for the examination of any gentleman whose curiosity may prompt him to observe them in a manner still more satisfactory. For my own part I have very little doubt that they belong to the order of vermes molusca, and to that genus termed actinia. I consider those vesicles as tentacula or legs, by which they adhere to different substances while feeding on their prey.

That this particular species of worms should be found residents of the human body, is, so far as my reading extends, entirely novel. Considering it a duty to do all in my power to aid the laudable efforts of yourself and colleague for the diffusion of medical information, I submit the above case to your inspection, with liberty to make such use of it as you may think proper.

Yours, &c.

JAMES S. STRINGHAM.

P. S. Since writing the above I have met with a case, described in the sixth volume of the transactions of the Royal Irish Academy, by Dr. Samuel Crumpe, which bears considerable analogy to that which I have just related to you, so much so, that I suspect the worms to be of the same genus, but can

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light: it is as much surrounded with hypothesis as ever. I proceed to state the doctrine in question, ascribed by Mr. Lee to the German physiologist and his English expositor, and to consider the reasons which have been opposed to it.

"These gentlemen believe that mercury, when introduced into the body, owes its activity to oxygen, with which they suppose it is always combined." This doctrine, we are told, was once as confidently adopted as it is now strenuously opposed. Who would not be captivated by, and admire the theory of the *modus operandi* of a class of medicines (called sialogogues) which reduced it to so plain and so intelligible a point, as that *oxygen was the universal principle of salivation*? I forsook this belief, however, nearly as soon as I had attached myself to it: for, after some study, and not without satisfaction, its absurdity struck me in the most forcible manner. Why, it was natural to inquire, attribute the effects derived from the administration of mercury to oxygen, and not to the metal itself? or why use the latter if the former is alone the agent by which every thing is effected? 1. Because, if applied to the system in the naked state of oxygen, it would be *immediately* absorbed, and employed in the various combinations and decompositions which are constantly taking place in the stomach and lungs, in the regular discharge of the animal functions; and thus a medical or specific effect upon the system would be prevented. 2. Because, when introduced in the state of mercurial oxyd, it probably is conveyed through the chylopoetic viscera, and quite to the extremities of the arterial system, before it parts with its base; where, by stimulating the lymphatics and glands, a salivation is produced. If the writers whom Mr. Lee controverts have asserted that oxygen is the *universal principle of salivation*, the assertion, very possibly, is carried too far. Yet, that it is not mercury alone which salivates, is conceded, upon the testimony of Dr. Barton, in the instances of salivation by copper, camphor, and seneka. Perhaps there is no material element which holds so close an alliance with the vital principle as oxygen, and this, above every other consideration, induces us to believe that it is the grand efficient in all the most important preparations of materia medica, either by combination with them as radicals in the system, or by decomposition from them. But the principal reasons which led to a suspicion of the validity of the aforementioned doctrine are,

1. "Many substances salivate which do not contain a particle of oxygen; of course, a salivation may be induced with-

out the presence of oxygen. Dr. Barton, in his lectures on the materia medica, mentions the case of a child, who, in consequence of swallowing a cent, was salivated. The coin, when discharged, was diminished in size a fifth part. The copper, in this case, when swallowed, contained no oxygen; and to say that it became oxydated in the stomach, is an evasion which, on account of its absurdity, merits but little attention." But if there were no oxydation and consequent erosion of the metal from the acidifying principle, by what means was it diminished a fifth part? Was it *melted off* by the heat of the stomach? Under this article a doubt is implied, whether the stomach ever contains an acid of sufficient strength for metallic oxydation. I only know, what many others know from experience, that it frequently contains an acid sufficiently concentrated to produce very great heat and distress, at least equal to a *febris mercurialis*. And in *cardialgia* cretaceous preparations are prescribed with the intention of neutralizing the acid which is the cause of the complaint. As to salivation from camphor and seneka, the fact is doubted, with deference, however, to the respectable authority upon which it rests: at any rate, this is not the uniform tendency of these medicines in their more general operation; or, if this effect ever is produced, it must be owing to some peculiar state of the system previous to their administration. Mercury has no qualities in common with copper, camphor or seneka, yet they individually produce salivation! This mystery requires solution. We dare not confide it to the ingenuity of the gentlemen whose opinions I espouse, but refer it to their opponents.

2. "It has been said that sulphur relieves a sore mouth by combining with the oxygen which was the cause of the disease. But, in answer to this, were I to inquire, is the sulphuric acid formed in this case? I should receive but an unsatisfactory answer." Well, here it is: Such a result would possibly obtain, were the quantity of oxygen sufficient, and were it compatible with the laws of the animal economy to admit the process. We do not sufficiently consider that the circumstances necessary to be observed in accurately conducting *chemical* experiments, cannot apply to the various processes of the animal system. "Again—Dr. Barton says, in his lectures, that he has seen, in a number of cases, the effects of mercury upon the mouth abated in a very surprising manner by the use of opium. I do not know that opium has an affinity to oxygen!" The concluding sentence seems to

be dictated in the triumphant spirit of the laurelled hero. This fact, upon which so much stress is laid, is at least balanced by the following from Hufeland's Journal, and is thus related in the Medical and Physical Journal of London, vol. iii. p. 586: *An old woman fell into a considerable salivation after every dose of opium she took, in whatever form it was given.* The comments of the editors upon this fact are strictly in accord with the contested notion respecting the action and efficacy of mercury. Here, then, are two effects from the operation of the same medicine, that are diametrically opposite. The state of the animal powers, therefore, has a joint concern with the qualities of any medicine in determining its peculiar effects. In the treatise by M'Lean and Yates, it is stated as a medical axiom, that every article in the materia medica capable of carrying the excitement to a certain point, will salivate! Opium is mentioned as frequently producing this effect. *I do not know that opium has any affinity with quicksilver!*

3. "It is well ascertained that the heat of the human body is not sufficient to deoxygenate mercury in the forms in which it is generally used. It is true that trituration alone will revive precipitate *per se*. This preparation contains but a small quantity of oxygen, and all higher degrees of oxydation require a temperature many degrees above 98 to disengage the oxyding principle from mercury." It may require a temperature above 98 to disengage the oxyding principle from its combination with mercury by an artificial chemical process; but there is no proof that the oxyd cannot be decomposed by a much lower temperature when submitted to the action of the digestive and assimilating organs. In this third article I can see nothing to invalidate the theory of Girtanner: it rather confirms it; for the revival of the precipitate *per se* is accounted for upon the idea of its containing only a small quantity of oxygen. But if there is a deficiency of the acidifying principle in this preparation, it is inert in the same proportion.

4. "Mercury may be rendered invisible by trituration it with rhubarb and honey, in the space of two minutes. Is it to be presumed that this metal can be oxyded in so short a time?" Yes; and if the presumption is not well founded from the remarks that have already been offered, it will, we think, be rendered probable in such as are to follow. Upon what principle do many chemists recommend trituration first with a small quantity of *rancid oil*, and afterwards with the lard, in order to expedite the process of preparing the mercurial unguent?

5. "A few grains of corrosive sublimate will salivate, which do not contain, *perhaps*, a thimble full of oxygen. Can gentlemen tell you that this small quantity of oxygen will produce a *febris mercurialis*, who believe themselves in the oxygenation of the blood by respiration? If this paradox can be reconciled to common sense, it is to be effected only by the ingenuity of a Girtanner or a Beddoes." Then I shall blush to be known as an advocate of this doctrine. Let us see to whom the reproach of supporting paradoxes belongs, and who is on the side of common sense and reason. A certain supply of oxygen is always necessary to the support of animal life, there being a constant expenditure of this ingredient in the various combinations, secretions and excretions of the animal system. When this supply exceeds a certain point, an increased action of the vessels takes place, and the secretions become more abundant. If the over-supply becomes great, the excitement is proportionably extensive; the body feels an unusual heat, and the circulation is much accelerated: at length profuse perspiration breaks forth, accompanied with increased salivary secretion, and thus the healthy medium of action is restored, and the system relieved. There is, then, no mystery in even a small quantity of oxygen producing a salivation, if the body were previously saturated with oxygen to the healthy point; more especially if the oxygen should not be evolved from its metallic base till it arrives to that part of the system where its stimulation is *immediately* upon the evanescent arteries and salivary glands. Thus much upon the *thimble full of oxygen*.

If objections of the like nature with the above were multiplied *ad libitum*, and could be extended *ad infinitum*, the validity of the doctrine would not, in the least, be impaired thereby; its fabric would still remain compact, and its foundations unshaken. The *experiments*, however ingeniously contrived and conducted, conclude no more than that, by trituration, the mercury becomes oxydated, not by oxygen from the superincumbent atmosphere, but by a change in the order of affinities in the different substances of the triturated mass. The loss of weight might be occasioned, in part, by evaporation from the generation of heat, but more by adherence to the surfaces of the vessels in which it was triturated. But we are answered that it is improbable the mercury becomes oxydated from the lard with which it is triturated, because the lard has a stronger affinity for oxygen than mercury. This is said to be proved by boiling lard upon an oxyd, when the

metal will be revived. I should like to be informed whether the lard gains any weight, or is made rancid by this process. Much error frequently arises from not discriminating between heat and mechanical agency, as employed in the preparation of medicines. Mechanical power has no chemical relation to the substances it acts upon, and, therefore, the change which substances undergo is wholly according to the affinities subsisting between them, independent of the operating power. But heat is entirely a chemical agent, and, therefore, the changes it produces upon a collection of different substances is more according to their individual affinities with heat, the operative power, than from any reciprocal influence upon each other. In the latter case something is actually imparted to the substances acted upon; in the former, nothing. This may suffice to explain why lard, by *trituration*, will oxydate mercury, and, by *boiling*, deoxygenate, allowing the fact to be true as stated above.

The author of the dissertation which is the subject of these remarks, after a little diversion with *saccharum saturni* and white lead, goes on to explain why, in his opinion, sublimate of mercury is more powerful than calomel—*because the one is more a complete salt than the other*. Calcined quicksilver, however, is not a salt, yet it is not less efficacious than *muriated* quicksilver. In like manner, because nitrous acid is not so perfect an acid as the nitric, it is said to be less powerful. But reduce, by dilution, the nitric acid to the strength of the nitrous, and will there be any difference in their medicinal effects? Is there not the same proportion of azote in equal quantities of the two acids? What, then, makes one more efficacious than the other, but the difference in the quantity of oxygen in combination? The question is not whether the effect of the acids of nitre are exactly the same as that of oxygen when it is combined with azote; the primary question was, whether mercurial preparations were not efficacious in exact proportion to the quantity of oxygen they contain. This has not yet been disproved.

One objection more remains to be noticed. It is denied that either of the above articles, viz. mercurial preparations, or the acids of nitre, undergo decomposition in consequence of any vital action upon them. This fact, it is confessed, is as incapable of demonstration as it is difficult to prove the comminution and decomposition of the food and drink we use for nourishment. To doubt the fact in either case “is an evasion which, on account of its absurdity, merits but little

attention." In my opinion, a more difficult thing to prove is, that either food or medicine ever passes from the primæ viæ, and through the round of circulation, without being both *decomposed* and *recomposed*.

By this time it can be determined whether the advocates of the doctrine we have endeavoured to defend are justly chargeable with being so much infatuated by the perverting poison of enthusiasm, as that nothing has been able to cool their ardour, or to put a stop to their wild career. "Oxygen has been the burden of their song; and, in the pursuit of this question, common sense has been offended, whilst prudence has been unable to mark out a single limit to their range. Candour has long since retired from the scene of action: for, while the heart beat sensibly for the truth on one side of the question, self-love and misguided fancy proclaimed victory on the other."

It was my intention to have recapitulated the leading facts and principal arguments favouring the contested doctrine; but this must be deferred for the present.

ARTICLE IX.

ADDITIONAL REMARKS on Mr. CRUIKSHANK'S EXPERIMENTS on FINERY CINDER and CHARCOAL: Communicated to the Editors by Dr. JOSEPH PRIESTLEY, in a Letter dated Northumberland, November 15, 1802.

THOUGH I have sent you several remarks on Mr. Cruikshank's observation on my argument for the doctrine of phlogiston, from the experiment with finery cinder and charcoal; yet as he has replied, and the French chemists, the great patrons of the new theory, acquiesce in and applaud his answer, I have been led to give more attention to the subject, and this has suggested further proofs, as they appear to me, of the fallacy of his hypothesis. That the chemists in this part of the world may have an early opportunity of forming a judgment on the state of the controversy, which is certainly of considerable importance, I send you the following distinct statement of my objections to the *principle* which Mr. Cruikshank has assumed, which is entirely different from that of Mr. Berthollet, or that of Dr. Woodhouse, and in my opinion more exceptionable than either of them.

1. Mr. Cruikshank's hypothesis requires that in the process of heating finery cinder and charcoal, the oxygen in the finery cinder should quit that substance, and unite with carbone in the charcoal, in order to form *fixed air*. Since, however, this fixed air is to be decomposed, the oxygen which it has got from the finery cinder must be separated from it, and enter into the same calx again. But while the heat continues the same, I deem these contrary effects to be impossible. If the degree of heat that is applied expel oxygen from the calx, it will certainly prevent its return. Consequently, if fixed air could be formed, it could not be decomposed, in these circumstances.

2. If the oxygen should quit the fixed air, nothing would remain of it but carbone, as before their union; and this is a solid substance, incapable, without the aid of oxygen, of assuming the form of *air*. Whence then comes the inflammable air in this process, which so nearly resembles that from charcoal and water, that they must have the same origin? And in this case Mr. Lavoisier himself decides that whatever is *inflammable* in it must come from *water*.

3. Admitting all that Mr. Cruikshank alleges, concerning the difference in the specific gravity, and other circumstances, between the air from finery cinder and charcoal, and that from water and charcoal, it is not so great as the difference between this latter and the light inflammable air from the metals with acids or water. Different as they may be in other respects, they are all *inflammable*, from their affinity to oxygen, and their property of uniting with it in a certain degree of heat; in consequence of which they are alike the reverse of *oxydes*, and must be classed among *combustible substances*, equally with sulphur and phosphorus.

4. If the oxygen, after quitting the finery cinder, entered into it again, it would make it finery cinder as at the first, or at least in some degree. But the calx is completely revived in this process; the iron so revived being as soluble in acids as any iron whatever.

5. If the iron should be completely revived in the former part of this process, by the oxygen wholly leaving it, I maintain that it could not by any degree of heat decompose fixed air; since this cannot be effected by the heat of a burning lens of sixteen inches diameter, in the space of several hours, in only a very few ounce measures of the air. Mr. Cruikshank's process with *bladders and a gun barrel* I have frequently used, but I never had any satisfactory result. The scale he found

on the iron, I have no doubt, came from moisture in the air or the bladders.

6. Mr. Cruikshank seems to think that charcoal cannot contain any oxygen; but Mr. Tennant's fine experiment decisively proves that it does. For where are we to look for the oxygen (which we all acknowledge to be a component part of the fixed air) which is separated from the marble, but in the charcoal that is produced? And in that it makes part of a solid substance, and does not take the form of air.

7. Since oxygen and all combustible substances unite and explode, in a certain degree of heat, the oxygen expelled from the finery cinder uniting with carbone from the charcoal when red hot must enable it to burn; and therefore, in these circumstances, there ought to be an explosion, or at least a gradual combustion of them in the course of the process, as there is when oxygen is put to the same substance and heated with it afterwards.

It is now near twenty years since this new theory was advanced, and from that time to the present I have not ceased to express my opinion of its fallacy, and to give my reasons for that opinion; but I have not till very lately been able to draw much attention to the subject. Now, however, that I have succeeded in this, I flatter myself that the controversy will come to a speedy termination.

ARTICLE X.

An ACCOUNT of a PLANT called the MAGATHY-BAY BEAN, or ACCOMAC-PEA, cultivated for fertilizing Lands: In a Letter to Dr. MITCHILL, from the Hon. JOHN DENNIS, Representative in Congress from Maryland, dated Washington City, December 10, 1802.

IN conformity with your request, you will find herein a brief description of the Northampton Bean, sometimes called the Accomac-Pea, alias the Magathy-Bay Bean, with an imperfect sketch of some of its principal properties and uses. Having no pretensions to a knowledge of botany, this communication will be that of a husbandman, and the information requested will be given in that plain, inartificial manner, of which I am alone capable, and which will be the most intel-

ligible to the mass of agriculturists, and perhaps, therefore, the more useful.

The above-mentioned bean or pea is a plant of annual growth, varying from eighteen inches to three and a half feet in height, according to the fertility of the soil. It grows in almost every kind of soil, however poor by nature, or impoverished by an exhausting cultivation; though it succeeds best in a light, loose land, and does worst in hard binding clay. It has a small tap root, and a few inconsiderable lateral roots, with a wide-spreading top, covered closely with a foliage, and bearing a pod, with pease or beans therein contained, strongly resembling the leaf, pod and pea of the locust-tree. It has therefore been denominated, by some, a locust-tree in miniature. This plant has the singular property of expanding its foliage in the day, and of contracting it in the night, thereby admitting the passage of the dews to the earth, and of excluding therefrom the rays of the sun. To this cause has been very much attributed its supposed efficacy in the amelioration of the soil.

The modes of propagating and perpetuating it are various, but those generally in use, and most approved, are the two following; viz. to sow with oats, or other small grain, in the spring, from a pint to a quart of the pea or bean to the acre; or you may sow it on the ground newly ploughed by itself. If the land be of a light, loose quality, you may sow the above quantity on wheat, or on the land unploughed; but if the soil be stiff and binding, it is necessary to plough it. As it is sometimes injured by the autumnal frosts, and never sprouts till late in April or the first of May, it may be desirable, in your northern latitudes, to sow it as early as possible; and where it is sown on wheat, or by itself, on account of the length of time for which it lies on the earth before it germinates, it may be scattered over the ground in February or March. The other method most approved, and that which is the most economical with regard to seed, is to plant two or three of the peas or beans in the hill with Indian corn, common peas or beans, and suffer it to grow and ripen with the same, which it will do without any injury thereto; and, from the multiplicity of seed it contains, and the elastic tendency which it possesses in the bursting of its pods, it will spontaneously seed the earth with as much or more regularity than it can be effected by any other mode. The shortness of your summers, and the liability of the pea to be injured by the frost, form the only objection to the latter mode in the State of New-

York, and therefore, perhaps, the other is to be preferred. When the earth is once replenished with the seed, it will perpetuate itself, provided that where the land be stiff the ground be broken once every year, and, where light, once in two years. I have usually planted the land in Indian corn, and seeded it in oats or other small grain, and cultivated it alternately in the one or other every year; and this is the most effectual and expeditious mode of introducing and of perpetuating it. The year the land is in corn, all the pease that sprout in the spring will be destroyed by cultivation; but there still remains in the earth a sufficient quantity to seed it, which will come up with wheat, oats, or other small grain, the succeeding spring, in great profusion; will grow and flourish with it; and will have attained a height, by the time of harvest (which, in Maryland, is in July), that is sometimes, though not generally, in the way of the scythe. As soon as the grain is removed, it progresses with great rapidity, and attains its growth some time in August—overshadows the land, suffocating and excluding all other weeds and grass. It now puts forth a yellow blossom, which (particularly in our large plantations), causes the field to exhibit a most beautiful appearance for a few weeks, and ripens in the month of October, affording to the bees, in its bloom, delicious sustenance, and to the sportsman, in its maturity, delightful amusement, in the large number of quails which it attracts, and for which it furnishes a nutritious food, whilst it shelters them from the hawk. After the pea is ripe, we frequently open the enclosure to cattle and sheep, and other animals, and the cattle and hogs are fond of and fatten on it, but carefully exclude cattle and sheep from it in its green state, since they speedily destroy it.

The principal use, however, to which it is applied, and for which it is the most prized, is its application as a manure, to which it contributes as well by its properties before-mentioned, of expansion and contraction, to which may be added that of attraction, as by the great quantity of litter which it leaves on the earth. The spring succeeding its growth we find it a little in the way of the plough, and the labourers frequently complain of it on that account; but, after two or three ploughings, it dissolves, and mingles with the earth, and, by the middle of summer, is scarcely perceptible. It opens a close binding land, and fertilizes and adds to the soil wherever it grows; but if it will only leave the land as it found it, under the severe but profitable system of exhausting cultivation, of Indian corn one year and small grain the next year succeed-

ing, for twenty years together, we apprehend it is a great point gained with us, in our worn-out lands, where other sources of manure are yet unattainable in sufficient quantities. In the county of Northampton, in Virginia, where this plant was first discovered to be useful, they have cultivated their lands every year, for twenty years last past, in Indian corn or oats, and find the land, without the aid of any thing but the pea, considerably improved. The ardent and impatient, who expect from it all the effects of a dung-heap, will, however, be disappointed; and the husbandman who is contented to grow rich and flourish by a slow and progressive system, will alone duly appreciate its merits, and continue its cultivation.

I have communicated all that I deem important on the subject, but will, with pleasure, answer any queries which you may think proper to suggest; and will refer you to the Hon. Mr. Stratton, who resides in the county in which this plant was first discovered, and where it is now in universal use, for a fuller account of its valuable properties.

ARTICLE XI.

OBSERVATIONS on the FUNCTIONS of the LIVER, and on the IMPORTANCE of that ORGAN as possessing great ASSOCIATE INFLUENCE, and as a frequent SEAT of MORBID AFFECTIONS; being an Abstract of a Paper read before the Physical Society of New-York, October 7, 1802. By Dr. MALACHI FOOT.

A CONSIDERATION of the *associate* diseases of the liver would be naturally preceded by that of the *primary* diseases of that organ, and also a description of those morbid conditions of the alimentary canal, arising from the varying states of the bilious secretion; but a detail so lengthy as would be necessary fully to accomplish this, is, with propriety, here limited to a few observations.

The liver, whether we form our estimate from its functions in health, or the evil consequences of its diseased state, is one of the most important organs of the human body. Its office, together with those of the *gall-bladder* and *ductus communis choledochus*, is to supply the intestines with bile for the purposes of digestion, and preventing the inconveniences resulting from the natural decomposition of food within the alimentary canal.

Digestion has, till lately, been considered as one of the most mysterious functions of the animal body. It is the great leading process of that assimilation which converts dead animal and vegetable matter into nutriment and organized life.

Digestion differs so materially from that natural decomposition of bodies, during the process of fermentation, that the slightest degree of the latter, within the alimentary canal, is productive of inconvenience. The disengagement of noxious gases, and especially of that mephitic poison, a product of the putrefactive process, abounding particularly in the lean of animal meats, is among the evils of imperfect assimilation.

The great efficacy which the bile exerts in preventing these evils is not always justly appreciated. The properties of pure bile are saponaceous, alkaline, and oleaginous; whence the liver has lately, with much propriety, been termed "the great manufactory of soda for the purposes of the system."

Whether *dyspepsia* is ever idiopathic, simply as respects the stomach, is very problematical. The old opinion, that trituration constitutes a very considerable part of the business of digestion, has become more inadmissible since the explosion of mechanical doctrines as explanatory of living actions.* The gastric juice being a secreted fluid, like all other secretions, varies with the state of its secretory organ; yet the marks of diversity, as to its quantity or morbid qualities, are by no means so conspicuous and distinct as those of the *bilious* secretion.†

There exists between the stomach and liver a most intimate and important association. The latter, in its healthy state, is ever ready to perform its offices at the instance of the former. In ordinary states of the digestive function, when the articles taken in are of a proper nature, and in due quantity, the presence of a very large store of bile is not necessary; but such is its importance, that an absence of this friendly fluid, even for a short time, merely as respects the stomach, is attended with the greatest inconveniences. Its primary and ordinary office is to meet the aliment in its passage from the pylorus through the duodenum, and at that instant when it might otherwise assume the most noxious

* See the Experiments of Spallanzani on this subject.

† Dispensing with the consideration of the theory of digestion, every physician must have noticed, that the most prominent symptoms attending the dyspeptic may be resolved into the effects which naturally result from a deficiency in the bilious secretion. Does habitual *dyspepsia* seldom occur without evident marks of a *torpid liver*?

forms, intimately to combine with it, disarm it of its deadly weapons, and render it a peaceable passenger in its mazy course. The quantity of bile excreted into the duodenum, within certain bounds, is proportionate to its need. Such is the animal economy, that those qualities which require an extraordinary quantity, provoke an unusual secretion. This is particularly exemplified by the presence in the stomach of a strong acid, and especially that noxious form of it resulting from the natural decomposition of aliment. When united to an acid, bile is changed to a greenish colour, termed "porraceous," and, in this vitiated and remarkable form, is exposed to our view. Such are the healthful qualities of this fluid, in its pure state, that the term "redundancy of bile," in physic, is as improper as that of "excessive virtue," in ethics.

Do the several modifications of diseases of the alimentary canal arise from diversity of temperaments (as they are described by Dr. Darwin), and the influence of epidemic causes? May not the liver often be said to be the primary seat of these diseases, or the medium through which epidemic causes operate? And will not a balance between the noxious agents and the antiseptic virtues of pure bile ever insure health? Inferences, drawn from some modern principles, promise much towards a solution of these inquiries.

Sympathy may be defined to be that synchronous or successive condition of two or more parts of living bodies, arising from the operation of a local cause. Mechanic reasoning can with no propriety be applied to the explanation of the important doctrines of association. It is not satisfactorily explained by the trite notions of vascular or nervous anastomoses; nor is it to be assigned, *en masse*, to contiguity of origin in the sensorium commune. To become an adept in this science, requires a more complete acquaintance with that principle which constitutes the difference between living and dead matter, the origin of our early motions, and the manner and extent of the operation of external agents. Though I cannot second the declaration of the great author of the Brunonian system in execrating physiology, yet I possess a strong impression that the study of it contributes but partially to an acquaintance with the interesting doctrines of morbid association. As a specimen of its inadequacy, I might challenge the ingenuity of the best informed physiologist, even with the aid of a most lively fancy, to explain satisfactorily the phenomenon of *singultus nephriticus* (hiccup from calculus in the kidney), or the cause of *tensio penis* in *hydrophobia*.

The important office of the liver, in furnishing the bile, is only equalled by its possessing over the system a strong and most extensive associate influence. This organ obviously derives its extensively controuling powers through the medium of the stomach, which having commenced its functions in our earliest embryo-state, and being the great seat of our pleasurable sensations, may almost be termed the seat of life.

It is a happy provision in the animal economy, that these organs, exposed, as they are, from the nature of their offices, to the exciting causes of disease, while they possess a high degree of *irritability*, are almost destitute of *sensibility*. The liver, as a second link of a train of associations, and possessing rather more sensibility than its principal (the stomach), assumes her morbid states, and transfers them to a third part, possessed of still more than herself: thus gastritis is a disease of less frequent occurrence than hepatitis, and a phlegmon of an inferior extremity, or an affection of the parts about the right shoulder, is of more frequent occurrence than either.

Among the associate diseases of the liver we may class some of the following.

1. *Erysipelas*. This is a sensitive affection of the external surface, frequently sympathetic of a morbid irritation of the membranes about the liver, and belongs to Dr. Darwin's class of associate diseases. As there is an intimate consent between the internal viscera and external surface generally, this disease may arise from an affection of some other viscus. It is commonly preceded by a fever of two or three days continuance, terminating in this metastasis (of action, not of fluid) to the surface. As the cause does not reside in the place of its appearance, it is liable to recede on exposing the part to cold. Of the same origin is the pimpled face of females of habits of great associability, and the *gutta rosea* of intemperate persons.

2. *Gout* and *Rheumatism*. Are not these diseases often of hepatic origin?

3. *Colica Saturnina*. The *modus operandi* by which lead produces its deleterious effects is not well understood. Its most obvious property is that of a great stimulus to the absorbent system. In the cases in which it proves injurious marks of a torpid liver are conspicuous. The general symptoms are, dyspepsia, flatulence, costiveness, colic pain, pallid complexion, low spirits, a partial paralysis, more especially of the right arm and shoulder, sometimes attended with a severe pain—hepatic cough, and general debility. A removal of the usual

symptoms, in a case of this kind, by mercury, was succeeded by a permanent *gutta rosea* of the face.

4. *Asthma*. Of the two species of this disease, the humid is often a sympathetic affection. The lungs and liver, separated only by the diaphragm, are intimately associated. The exciting cause of humid asthma is the irritation of a saline mucus lodged in the air cells from deficient absorption. In the case of *torpor hepaticus* it may arise from *direct* sympathy—in *chronic hepatitis* from *reverse*. The laborious respiration and cough are a combination of voluntary and sensitive motion, for the purpose of relieving pain and removing the offending cause. For the sake of illustration, I trust I shall be excused in relating briefly the history of a case most obviously apposite.

Among other marks of an occasional occurrence of chronic hepatitis, or a morbid degree of irritation of the membranes about the liver, the most troublesome was an obtuse pain in the right hypochondre, attended with much anxiety. This succeeded an attack of intermittent fever, during a short residence in a marshy country. The first and most conspicuous associate symptom was a periodical head-ach, generally in the form of hemicrania; commencing with cold chills, and, for the most part, terminating in anorexia and vomiting. This translation of pain was attended with a removal of all sensitive affection from the primary part, and was obviously owing to an increased sensibility and mobility of the membranes about the head, produced by a change of employment from an easy and sedentary life, to the situation of a person constantly exposed to all the vicissitudes of temperature between the extremes of heat and cold. A removal of these causes, by a change of residence, and the in exposure and ease of a city life, with the inconvenience of a frequent inhalation of deleterious gases, has converted this form of disease to a most troublesome *asthma*. That this form of affection results from the original cause (morbid irritation of the hepatic membranes), is rendered probable both by the circumstances attending the occurrence of the paroxysms, and the operation of remedies. That, in this instance, a reverse sympathy obtains between the liver and lungs, is rendered conclusive by the two-fold consideration, that both those causes which produce a direct influence on the former, through the medium of the stomach—as the stimulus of a full meal, acids, aromatics, or wine—as readily and invariably produce its paroxysms as the direct operation of noxious gases on the *lungs*, or the

sudden exposure of that organ, and also the surface, to a cold and moist atmosphere. Correspondent to the operation of the exciting causes is also the operation of remedies. A diminished excitement of the stomach and liver, by the action of digitalis—a nauseating portion of ipecacuanha—or fifteen hours abstinence—are not less certain in procuring relief than the inhalation of the fumes of tobacco—breathing the warm and dry air of a tight room—or the stimulus of additional flannel to the surface. The most complete relief from this very uncomfortable disease has, of late, been obtained, by taking three grains of *mild muriate of quicksilver* for eight successive days. Does the certain temporary relief derived from the high diffusible stimuli, as opium and camphor, arise from the universality of their operation in dissevering morbid associations, and exciting increased action throughout the system?

5. *Phlegmon of the extremities*, without evident local cause—that species of affection termed *fever-sore*—*paronychia* and *boils*. Are these frequently substitutes for acute inflammation of the liver, or sympathetic of a chronic disease of that viscus?

6. *Sphacelation of the fleshy parts*, with a caries of the bones of the toes. This curious species of affection, though not of frequent occurrence, is, however, under the usual mode of treatment, as a local disease only, often very troublesome, extending to the metatarsal bones, and gradually wasting the whole foot. Permit me to state, that two cases of this kind, which have come under my inspection, have afforded ample proofs of their hepatic origin. Does the known sympathy between the liver and feet place this affection, as to origin, on the same ground of probability with *gout*? and does the benefit arising from a liberal use of opium in these cases, as recommended by Mr. Pott, result from its high stimulant powers in exciting the healthy actions of a torpid liver?

Among errors in nosology, probably there are none more universal than the opinion that certain symptoms, expressive of hepatic disease in children, denote the existence of worms in the alimentary canal. That those symptoms frequently indicate their existence is well ascertained; but, in a majority of cases, they unequivocally arise from a want of the healthy actions of the liver, of which the existence of worms is only a symptom.

I shall conclude this part of my subject by stating the intimate connection between our mental faculties and enjoyments, and a healthy state of this organ.

The two great sources of our happiness are the exercise of our intellects, and those healthy operations of our bodies of which we are unconscious, and which, unlike the former, commence with our existence. Reasoning *a posteriori*, we may safely conclude that a very considerable number of the cases of *tædium vitæ* arise from a disordered state of this organ. Our pleasurable and painful sensations so uniformly correspond with the healthy and morbid states of the liver, that they reciprocally excite each other. So sensible of this connection were the ancient writers on medicine, that, by the use of a simple term to express either, they conveyed the complex idea of both: hence the word *melancholia*, from the Greek *μελας*, *black*, and *χολη*, *bile*; hence also the term *hypochondriasis*, referring to that region of the abdomen which is the seat of the disease: and when they described a person of an irritable and peevish disposition, they termed him *choleric*, from *χολερα*, a diseased state of the bile.

Among the causes of hepatic diseases we may count some of the following.

1. Intemperance in the use of spirituous liquors, and other high diffusible stimuli.
2. Intense and constant grief; and a sedentary life, with close study on subjects destitute of amusement.
3. The constant practice of equitation in rough countries; and the swallowing large quantities of cold liquids, with the body previously heated.
4. The practice of too frequent taking of food between the regular periods of meals, and an inordinate use of saccharine and oily food. Does the latter article produce a torpid liver, by destroying the stimulant properties of the gastric juice, from chemical operation? We are told, by the satirical Horace, in describing the caupones of that day, that the Romans possessed the art of enlarging the livers of their fowls to the size of the whole body. This art is practised by the Sicilians of the present day; and it is said to be effected by feeding them liberally with food impregnated with oil.* Common practice prohibits the use of oily food in all cases of troublesome herpetic eruption, of which a great proportion are sympathetic of hepatic affections.
5. Imprudent removal of flannel dress; cold and damp lodgings; and an improper use of the cold bath.
6. Vicissitudes of weather, and change of climate. Amongst

* Vide *Zoonomia*, vol. i. p. 258.

European emigrants, no people appear to experience the inconveniences of our climate more sensibly than the Welsh. What should constitute so wide a difference between that people and the Irish, I am not able satisfactorily to explain. The climate of *Wales* is not more temperate, nor the weather less variable, than in *Ireland*. Is this difference to be imputed to diversity in the modes of life, and peculiar national temperaments?

7. The operation of certain *deleterious gases*. Like the case of the clown and violin, an illustration well introduced, on another occasion, by the ingenious Dr. Rush, whenever I view this subject I am obliged to relinquish it with the poor consolation of having only discovered the way leading to hidden treasure. Much light is thrown on it in a *Dissertation on the sympathy of the stomach*.* In all cases of fever, whether intermittent, remittent, continued, malignant, or yellow fever, and the concomitant diseases of that situation and season most favourable to their production, there are almost invariable marks of an affection of the liver.

Those symptoms usually and improperly denominated *bilious*, and attendant on these fevers, are familiarly spoken of by physicians, without ever attempting their explanation, whether they are to be viewed in the light of cause, effect, or symptom.

As the length of this paper excludes a particular examination of remedies, permit me to notice only two of those articles which admit of more general application, viz. *mercury* and *alkalies*.

If we may be allowed to compare the effects of mercury with that inert practice which accomplishes *nothing*; if an estimation of the effective powers of an article may be drawn from its ability in arresting the shafts of death, whether he approaches with gradual, but certain aim, or, rushing on with gigantic strides, boldly and suddenly stares the unhappy victim in the face—may we not, with some degree of propriety, balance this article with almost the whole of the *materia medica* in common use? It has, of late, (and without an hyperbole) received the appellation of the *Sampson* among remedies.

The explanation of the *modus operandi* of alkalies, and their more general introduction into practice, especially in fevers, has presented us with a new æra in medicine.

* Vide Medical Repository, vol. v. p. 300.

That a doctrine so discordant with those taught by most medical writers, and differing so entirely from the habits of thinking and practice of physicians, and which, from its extensive application, must effect so important a revolution in prescription, should meet with opposition, even from men of talents, is so far from militating against its worth, that a contrary reception would excite suspicion of its futility. An attempt to vindicate this doctrine, *a priori*, would be impeaching the well-known talents of its author: nor need I here assert that it is bottomed on the interesting discovery, that a gaseous poison—an oxyd—probably the compound of *septon* and *oxygen*—is a principal agent in the production of pestilence and its kindred diseases. The uniform nature of all the phenomena which constantly meet the eye, and are strikingly exhibited to the notice of every discerning mind, especially in epidemic seasons, conjoined to the practical testimony of a very respectable number of physicians within this city and country, of the great value of alkalies in fever and otherwise, are sufficient to establish it against the cabals of a *host* of European opponents. Consenting even to put in competition with the uniform and striking phenomena of nature, and the most unequivocal facts, the result of chemical analysis, as exhibited by artificial management, what is the conclusion? The experiments of Davy, Fourcroy, and others (even giving full credit to their testimony), amount simply to this: that *nitrous oxyd*, a principle differing materially from the *septic poison* of Dr. Mitchill, when inhaled into the lungs from a pneumatic apparatus, possesses high, and even morbid stimulant properties; and, when applied to dead animal substances, retards putrefaction. To the first of these positions, even granting the identity of the two agents, I shall only state, that the symptoms of yellow fever uniformly evince that the morbid cause is a substance of high stimulant properties, and that the rapid tendency to disorganization is the result of a sudden exhaustion of the powers of life, constituting the indirect debility of Dr. Brown. Were it not too great a digression from this subject, I might trace the analogy between pestilence and the cases of poisoning by *arsenic*, the bites of rabid animals and venomous reptiles, where the morbid cause is known to be a stimulant of the highest grade. As to the objection arising from the antiseptic powers of nitrous acid, at this period of medical improvement, when the two sets of laws which regulate living and dead matter are no longer confounded, it merits not a serious consideration.

ARTICLE XII.

An ACCOUNT of several CASES of general DISEASES cured by the EXTRACTION of decayed and diseased TEETH: In a Letter to Dr. EDWARD MILLER, from BENJAMIN RUSH, M. D. &c.

DEAR SIR,

SOME time in the month of October, 1801, I attended Miss A. C. with a rheumatism in her hip-joint, which yielded, for a while, to the usual remedies for that disease. In the month of November it returned with great violence, accompanied with a severe tooth-ach. Suspecting the rheumatic affection was excited by the pain in her tooth, which was decayed, I directed it to be extracted. The rheumatism immediately left her hip, and she recovered in a few days. She has continued ever since to be free from it.

Soon after this I was consulted by Mrs. J. R. who had been affected for several weeks with dyspepsia and tooth-ach. Her tooth, though no mark of decay appeared in it, was drawn by my advice. The next day she was relieved from her distressing stomach complaints, and has continued ever since to enjoy good health. From the soundness of the *external* part of the tooth and the adjoining gum, there was no reason to suspect a discharge of matter from it had produced the disease in her stomach.

Some time in the year 1801 I was consulted by the father of a young gentleman in Baltimore, who had been affected with epilepsy. I inquired into the state of his teeth, and was informed that several of them in his upper jaw were much decayed. I directed them to be extracted, and advised him afterwards to lose a few ounces of blood at any time when he felt the premonitory symptoms of a recurrence of his fits. He followed my advice; in consequence of which I had lately the pleasure of hearing from his brother that he was perfectly cured.

I have been made happy by discovering that I have only added to the observations of other physicians, in pointing out a connection between the extraction of decayed and diseased teeth, and the cure of general diseases. Several cases of the efficacy of that remedy, in relieving head-ach and vertigo, are mentioned by Dr. Darwin. Dr. Faber relates that Mr.

Pettit, a celebrated French surgeon, had often cured intermitting fevers which had resisted the bark for months, and even years, by this prescription; and he quotes from his works two cases, the one of consumption, the other of vertigo, both of long continuance, which were suddenly cured by the extraction of two decayed teeth in the former, and of two supernumerary teeth in the latter case.*

In the second number of a late work, entitled, "*Bibliothèque Germanique Medico-Chirurgicale*," published in Paris, by Dr. Bluver and Dr. Delaroche, there is an account, by Dr. Siebold, of a young woman who had been affected for several months with great inflammation, pain and ulcers in her right upper and lower jaws; at the usual time of the appearance of the catamenia, which, at that period, were always deficient in quantity. Upon inspecting the seats of those morbid affections, the Doctor discovered several of the molars in both jaws to be decayed. He directed them to be drawn, in consequence of which the woman was relieved of her monthly disease in her mouth, and afterwards had a regular discharge of her catamenia.

These facts, though but little attended to, should not surprise us when we recollect how often the most distressing general diseases are brought on by very inconsiderable inlets of morbid excitement into the system. A small tumour, concealed in a fleshy part of the leg, has been known to bring on epilepsy. A trifling wound with a splinter or a nail, even after it has healed, has often induced a fatal tetanus. Worms in the bowels have produced internal dropsy of the brain, and a stone in the kidney has excited the most violent commotions in every part of the system. Many hundred facts of a similar nature are to be met with in the records of medicine.

When we consider how often the teeth, when decayed, are exposed to irritation from hot and cold drinks and aliments, from pressure by mastication, and from the cold air, and how intimate the connection of the mouth is with the whole system, I am disposed to believe they are often the unsuspected causes of general, and particularly of nervous diseases. When we add to the list of those diseases the morbid effects of the acrid and putrid matters which are sometimes discharged from carious teeth, or from ulcers in the gums created by them, also the influence which both have in preventing perfect

* *Recherches sur differens Points de Physiologie de Pathologie et de Therapeutique*, p. 353—354.

mastication, and the connection of that animal function with good health, I cannot help thinking but our success in the treatment of all chronic diseases would be very much promoted by directing our inquiries into the state of the teeth in sick people, and by advising their extraction in every case in which they are decayed. It is not necessary that they should be attended with pain, in order to produce disease; for splinters, tumours, and other irritants before mentioned, often bring on disease and death when they give no pain, and are unsuspected as causes of them. This translation of sensation and motion to parts remote from the place where impressions are made, appears in many instances, and seems to depend upon an original law of the animal economy.

Philadelphia, November 22, 1802.

 REVIEW.

ART. I. *A Treatise on Sugar: with Miscellaneous Medical Observations.* By Benjamin Moseley, M. D. &c. Second Edition, with considerable Additions. 8vo. pp. 276. London. Robinsons. 1800.

THE subjects treated of in this volume bear so many important relations to the United States, that we have no doubt some notice of them will be acceptable to our readers. The author, likewise, from his account of tropical diseases, and of coffee, which a residence of many years in the West-Indies enabled him advantageously to treat, may not improperly be considered as an American writer investigating the products of our soil, and the nature of our diseases.

The first part of the work is devoted to an inquiry concerning *Sugar*. The importance of this great American commodity, in an agricultural, commercial, dietetic and medicinal point of view, is too well known to excite surprise that it should form the subject of nearly two-thirds of the volume. In the first place the author delivers the history of the *Sugar-cane*. To render this the more complete, he seeks for all the information he can find in the ancient writers, from Herodotus down to the destruction of the Roman empire. From this inquiry it seems to result, that the *Sugar-cane*, undoubtedly one of the most valuable plants in the world, is comparatively of modern cultivation. "The ancient Grecians and Romans (says he, p. 126) had no knowledge either of the sugar-cane or of sugar: for there is no mention made of the sugar-cane among the Grecian writers until an hundred years after Hippocrates; nor among the Roman writers until the time of Pompey's expedition into Syria. Sugar is not mentioned by either Grecian or Roman writer until the time of Nero. Neither poet nor historian mentions it in the Augustan age. In the districts of Asia, inhabited by the Hebrews and Israelites, at the time that country was traversed by the Grecians and Romans, sugar was unknown. There is no record among the Jews, even so late as at their dispersion, on this subject." It appears that the sugar-cane was found native in Asia, Africa and America, and that it was brought from the east into Europe at the return of the cru-

saders. After this account of the cane, he proceeds to give the history of sugar, which has excited many doubts among antiquarians, and is certainly involved in great obscurity. But as this is a point rather curious than practically useful, it is unnecessary to detain the reader by any details. The properties and use of sugar in the next place engage his attention. He commends it, in high terms, as an article of food, and considers it as the basis of all vegetable nutrition. He does not seem to assent to the opinion of its producing the decay of teeth; and is so far from believing that it promotes the generation of worms in children, that he is confident it tends to destroy and expel them.

After his account of sugar, the author offers some remarks on the *Cow-pox*, which, at that early stage of the discovery, he was disposed to reject as a useless and dangerous innovation on the practice of inoculating the small-pox. We entertain, however, no doubt that subsequent experience has effected a complete conviction of the error which he had inadvertently adopted on this subject.

Some observations on the *Yaws* follow next in order. But in this part of the work we meet with little that can be accounted new or memorable.

Under the head of *Obi*, a species of witchcraft prevailing among the blacks in the West-Indies, which he traces to Africa, and supposes to have originated among the ancient Egyptians, the author exhibits many curious facts.

The *Plague* in the next place engages Dr. Moseley's attention. He rejects, in decided and energetic terms, the old medical superstition and credulity, which assign the origin of pestilence to a contagion exported and imported from one part of the world to another. But on this subject we think it expedient to let the author speak for himself.

"The idea of the American plague being imported from *Bulam*, or the West-Indian islands, or any other place, is repugnant to reason. I was told a similar tale when I first went to the West-Indies; that the *yellow fever* there was imported in the beginning of the century from *Siam*; that it was a contagious, and an original putrid disease; and that bleeding was death. In my practice I proved the reverse of all this.

"The cause of pestilential epidemics cannot be confined and local. It must lie in the atmosphere which surrounds and is in contact with every part of us, and in which we are immersed as bodies in fluids.

"These diseases not appearing in villages and thinly inhabited places, and generally attacking only great towns and cities, may be, that the atmosphere, which I conceive to be the universal propagator of pestilence, wants a commixture or union with some compounded and peculiar air, such as is generated in populous communities, to release its imprisoned virulence, and give it force. Like the divided seminal principles of many plants, concealed in winds and rains, until they find suitable materials and soil to unite their separated atoms; they then assume visible forms in their own proper vegetation.

"Diseases originating in the atmosphere seize some and pass by others, and act exclusively on bodies graduated to receive their impressions; otherwise whole nations would be destroyed. In some constitutions of the body the access is easy, in some difficult, and in others impossible.

"The air of confined places may be so vitiated as to be unfit for the purposes of the healthy existence of any person. Hence jail, hospital, and ship fevers. But as these distempers are the offspring of a local cause, that local cause, and not the distempered people, communicates the disease.

"I know it is thought otherwise by Fracastorius, the inventor of contagion, and his followers.

"Plagues and pestilences, the produce of the great atmosphere, are conveyed in the same manner, by the body being in contact with the cause, and not by its being in contact with the effect.

"If pestilences were propagated by contagion from infected persons, the infection must issue from their breath or excrements, or from the exhalations of the bodies of the diseased.

"In support of the last circumstance, the Black Assizes at Oxford, in 1577, has been often instanced by authors; and that the judges, jury and attendants, were destroyed by the infection brought into the court by the prisoners. How could this be when the prisoners were not ill themselves?

"Insulating the sick, and debarring all intercourse with them, according to the doctrine of contagion, would bound and stop the spreading of diseases.

"This was tried at Marseilles, in 1721, without effect. The Capuchins, the Jesuits, the Recollets, &c. who kept themselves secluded in their several convents, and took every precaution against all communication from without, perished equally with others by the plague.

“The infection, if it were not in the atmosphere, would be confined within very narrow limits—have a determinate sphere of action—and none but physicians and attendants on the sick would suffer, and these must suffer; and the cause and the effects would be palpable to our senses. Upon this ground the precaution of quarantine would be rational. But who, then, would visit and attend the sick, or could live in hospitals, prisons and lazarettos?

“In confirmation of what I have lately and now said, and what I many years ago advanced respecting contagion and infection in pestilential fevers, a very important fact, resulting from Bonaparte's expedition into Syria in the beginning of 1799, has, within these few weeks, appeared, which will not be passed unnoticed by judicious physicians.

“Berthier, in his account of that expedition, says, ‘At the time of our entry into Syria all the towns were infected by the plague, a malady which ignorance and barbarity render so fatal in the east.

‘Those who are affected by it give themselves up for dead; they are immediately abandoned by every body, and are left to die, when they might have been saved by medicine and attention.

‘Citizen Degenettes, principal physician to the army, displayed a courage and character which entitle him to the national gratitude.

‘When our soldiers were attacked by the least fever, it was supposed that they had caught the plague, and these maladies were confounded. The fever hospitals were abandoned by the officers of health, and their attendants. Citizen Degenettes repaired, in person, to the hospitals, visited all the patients, felt the glandular swellings, dressed them, declared and maintained that the distemper was not the plague, but a malignant fever with glandular swellings,* which might easily be cured by attention, and keeping the patient's mind easy.

‘He even carried his courage so far as to make two incisions, and to inoculate the suppurated matter from one of these buboes above his breast, and under his arm-pits, but was not affected with the malady.

‘He eased the minds of the soldiers, the first step to a cure; and, by his assiduity and constant attendance in the hospitals, a number of men attacked with the plague were cured. His example was followed by other officers of health.

* “Degenettes' views in making this distinction were highly commendable; but certainly this fever was the plague.”

‘ The lives of a number of men, Citizen Degenettes was thus instrumental of saving.

‘ He dismissed those who had been ill with the fever and buboes, without the least contagion being communicated to the army.’

“ From the medical men of letters on that expedition much more may be expected as to the treatment of the plague; and I understand that the world will soon be gratified on this subject by Berthollet and his coadjutors.

“ Importing plagues, like the existence of contagion in pestilential fevers, is contrary to the opinion I ever had, and still maintain.

“ From whence was the importation of the plague at Naples in 1656, by which 20,000 people died in one day?

“ Can any person, for a moment reflecting, believe that the great plague of London, in 1665, which imagination traced from the Levant to Holland, and from Holland to England, was caused by opening a bag of cotton in the city, or in Long Acre; or a package of hemp in St. Giles’ parish?

“ Is it possible to suppose that people should have been found to propagate or believe the well-known and favourite story of the advocates for Mead’s theories—that a lady was killed instantly by smelling at a Turkey handkerchief, and a gentleman by only walking over a Turkey carpet!

“ One might ask, What became of the persons who delivered the handkerchief to the lady, and laid down the carpet for the gentleman?

“ How was the infection carried to the interior of Tartary, where it made its irruption on the world in 1346?

“ It is said that this plague depopulated two hundred leagues of that country, and destroyed serpents, birds, insects, and even trees. It spread to other parts of Asia and the East-Indies, and into Africa, Egypt, Syria, Greece, and the islands in the Levant, and, at length, into every part of Europe; and continued its devastations, in different countries, for the space of five years.

“ I have seen almost all the lazarettos, hospitals and prisons in Europe. The worst governments abroad most abound with this splendid inheritance of paupers and criminals—the children of bad state-parents.

“ Even in these false, cheating monuments of superstition, these impositions on credulity and benevolence, where pomp and magnificence are pictured without, and neglect, dirt, misery, and often malicious oppression, found within, I never

could discover that fevers are propagated by contagion. Were it possible so to be, I should have been long since dead.

"Quarantine, always expensive to commerce, and often ruinous to individuals, is a reflection on the good sense of countries.

"No pestilential or pandemic fever was ever imported or exported; and I have always considered the fumigating ship-letters, and shutting up the crews and passengers of vessels, on their arrival from foreign places, several weeks, for fear they should give diseases to others which they have not themselves, as an ignorant, barbarous custom.

"Speaking thus decidedly against the general opinion and practice, I may possibly incur the imputation of rashness from the timid—from those who believe in their fears—and from some who adopt opinions on tradition, without examination. But these are my sentiments. This is the way I take to serve my country, regardless of the narrow notions of vulgar prejudice: for, from what has lately occurred in our metropolis, it is not difficult to foresee, should the plague, or any pestilential fever like the plague, appear, how distress and misery would multiply, through false alarms, misrepresentations, ignorance and imposition."

The volume is concluded with some remarks on *bronchocele*, and on the *hospitals* and *prisons* which the author had visited in the course of an extensive tour through the continent of Europe.

ART. II. *An Essay on the Malignant Pestilential Fever, introduced into the West-Indian Islands from Boullam, on the Coast of Guinea, as it appeared in 1793, 1794, 1795, and 1796. Interspersed with Observations and Facts, tending to prove that the Epidemic existing at Philadelphia, New-York, &c. was the same Fever, introduced by infection, imported from the West-India Islands: and illustrated by Evidences founded on the State of those Islands, and the Information of the most eminent Practitioners residing on them. By C. Chisholm, M. D. and Inspector-General of the Ordnance Medical Department in the West-Indies. The second Edition, much enlarged. 2 vols. 8vo. London. Mawman. 1801.*

THE occurrences in the United States, relative to pestilential diseases, within the last ten years, have given an unexpected degree of importance to medical publications by

physicians of the West-Indies. The opinion held by some persons among us, that malignant fevers of the summer and autumn derive their origin from foreign contagion, which they suppose to be imported through commercial channels, and thence to be diffused from one person to another in our sea-port towns, naturally leads to a closer investigation of the diseases of the islands said to produce this contagion, and to a more attentive perusal of the writings of such physicians as have been there instructed by actual experience. If pestilence be transmitted from one country to another, like a bale of merchandize, it is necessary to trace its course at every stage of the passage, and to ascertain all the circumstances which favour or impede its arrival amongst us. It is unnecessary, therefore, to offer any apology for the account we now give of a publication from a foreign press; as our readers cannot fail to acknowledge the interest which every commercial town in the United States must feel on the subject of these volumes.

We are particularly desirous to draw the public attention to this work, although we entirely dissent from the author's opinion concerning the origin and propagation of the disease in question. Dr. Chisholm is a very respectable writer, and treats the subject of his work in a masterly manner. The contagionists and importers of yellow fever in this country would do well, as far as their powers extend, to pursue the example of this great defender of their doctrine. The dullness and feebleness which hitherto have pervaded all their attempts to support their opinions by argument, are often lamented by the more intelligent among themselves, and never fail to injure the cause they undertake to advance. This must be ascribed not only to the radical defects of these writers themselves, who attempt to carry a burden which their strength was never destined to bear, but likewise to an indolent unacquaintance with the information and assistance they might readily obtain from the work before us. We ardently hope to see a reformation on this point. We are sincerely anxious to see the doctrine we reject set in the best light it is capable of receiving, in order that the question may be brought the more speedily to a fair and ultimate decision. Let the contagionists and importers of pestilence in the United States cease, then, to rely on their own powers, which so repeatedly have disappointed and destroyed their hopes. Let them no longer fatigue the public with a reiteration of the crude and inconclusive reasonings, and of the mistated and inapplicable

facts, which experience has so frequently proved to be incompetent to sustain their sinking cause. Let them be persuaded, in a word, instead of this unavailing reliance on their own resources, to "give their days and nights" to the study of *Chisholm*, from whose sterling bullion of a single page they may draw wire enough to glitter through annual pamphlets without end.

It will be kept in the remembrance of the reader that this is a second edition of Dr. C.'s work; and that, while he retains nearly the whole of what appeared in the first edition, he has rendered this much more ample and comprehensive. In the preface to this new edition he states the motives which induced him to lay it before the public in an enlarged form, and vindicates himself from certain charges of misstatements and improper designs in the execution of his original work. In our judgment he entirely exculpates himself from the charges of sinister motives and wilful misstatement. And, notwithstanding the broad ground on which we differ with Dr. C. we are happy in this opportunity to acknowledge our conviction of the purity of his intentions, of his zeal for the public welfare and the advancement of medical knowledge, as well as of the eminent abilities which he displays in this work.

In the execution of his plan, the author has thrown the materials of the work into four parts. The first contains an account of the origin, progress, diagnostic, causes, and other circumstances of the pathology of the disease; each of which is treated of in a distinct chapter. The second part relates to the means of cure, and is divided into five chapters; of which the three former are appropriated to the discussion of the three general indications of cure, and the fourth is employed in the investigation of the principles on which the efficacy of mercury in the fevers of hot climates in general, and more especially in what the author calls the malignant pestilential and yellow remittent fevers, is founded; the fifth is devoted to observations on the action of oxygenated medicines on the system, deranged by fever and other morbid affections in hot climates. The third part is allotted to the important investigation of the means of prevention. And the fourth part is intended to exhibit proofs and illustrations of infection imported into the West-India Islands, and the colony of Demerary in South-America, during the years 1793, 1794, 1795, and 1796. An appendix, containing miscellaneous matters, is also subjoined.

Our limits do not permit us to go into a particular exa-

mination of many opinions and inferences from facts, in which, as we believe, Dr. C. has fallen into material error. This is the less necessary, as many of the points of opinion in which we think differently from him have been ably discussed by our late ever-to-be-lamented colleague Dr. E. H. Smith.* In the paper here referred to, it is plainly seen how many important facts, which are stated by Dr. C. himself, when carefully examined, lead to conclusions diametrically opposite to those which he intended to support.

In the consideration of this work, *contagion* is the grand and fundamental point of controversy. Importation must stand or fall with this power on which it necessarily depends.

The contagionists and importers of yellow fever, in order to maintain their hypothesis, are driven to an interpretation of facts, which, if admitted, would enlarge the number of contagious diseases beyond all the bounds of reason and experience. When yellow fever prevails in our cities, it is matter of familiar observation, that a person ill of that disease, by going to the country, communicates no contagion to such as approach his bed. A very few instances of a contrary result have been asserted to take place; most of these, however, upon due inquiry, have been proved to be unfounded. We will suppose, for the sake of argument, and out of respect for those who make the assertion, that some rare cases of this sort have seemed to occur. But what is to be inferred from such rare cases? not that the disease is really contagious; or else we must equally conclude that *phthisis pulmonalis* is contagious, against the clear and uniform decision of experience, and the authority of the most respectable observers. Dr. Beddoes relates the following facts, quoted from a publication of Dr. Luzuriaga. "A nun died at Bilboa of consumption. The furniture was burned; the walls, cieling and door washed; the floor taken up, and sand laid in its place. The cell was then tenanted by another nun, in perfect health, and of an excellent constitution. In two months she began to decline; her flesh wasted; the chest was attacked; the cough became worse and worse; in short, she died consumptive, in eight months after taking possession of the cell. General purification as before. It was supposed the disease was hereditary in the last case. A third healthy nun succeeded, and died in the course of the year. New examinations took place, and it appeared that the cord near the bed, attached to

* See our vol. i. p. 429, second edit.

the dropping bolt of the door, had not been removed. This, it is said, was impregnated with the sweats of the patients, and with other noxious exhalations. It was removed; new furniture introduced; and a fourth has lived in the same cell for five years. In Italy there is the story of a beautiful pair of gloves worn by a first wife, and alone of all her appurtenances not destroyed upon her dying consumptive. Long after, a second wife spies the gloves, wears them, and perishes like their-former owner." Notwithstanding these facts, Dr. Beddoes, in our judgment very judiciously, thus treats the question—"Is consumption catching? *Yes*, answer the writers of the south, with great consent, though not unanimously. The writers of the north say *No*. To our comfort, the former are either dupes to the phantoms of their own imagination, or their facts do not apply to us. We are certain that furniture and apparel, more bulky than bolt-ropes and gloves, and certainly not less likely to foster the matter of phthisical contagion, has no such effect with us. In any country, is not accidental succession more probable?"* In this opinion we have no doubt that Dr. Beddoes is supported by all the most respectable physicians in Great-Britain. And the experience of no country on earth can be deemed more authoritative than that of Great-Britain on this question; as no where else does consumption prevail so much, or commit such ravages.

We have been at the pains to state the above-mentioned facts, and the explanation of them, with the view to show how easily fallacies may be admitted on the subject of contagion. Most of the few instances of pestilential disease, in which contagion might be plausibly alleged, rest on no better foundation than the stories of phthisical contagion from the bolt-ropes and gloves in Spain and Italy. Indeed, the evidence with respect to the contagion of consumption seems to stand on stronger ground than that of yellow fever or other epidemic pestilence. While the latter is laying waste one of our cities, during the summer or autumn, it is well known that all persons, whether in town or country, and even such as apparently enjoy good health, are more generally disposed to take on febrile action than at other seasons of the year. It will therefore happen, at such times, not only that a slight exciting cause will be sufficient to induce disease, but that accidental coincidences of diseases will be more frequently ob-

* *Essays on Health.* Essay vii. p. 95.

served. The remarks here made are intended to be applied merely to those rare cases of contagion alleged to take place in consequence of the removal of the sick into the country adjacent to a town under the ravages of pestilence; for as to the spreading of such disease within the range of contaminated air in the city itself, it proves nothing more of the existence of contagion than the spreading of intermittents in the neighbourhood of a marsh.

In this view of the subject, it will be distinctly seen that Dr. C.'s cases of alleged contagion, beyond the range of air known and acknowledged to be peculiarly corrupted, are liable to the strongest exception. When, out of five hundred instances of exposure to this pretended contagion, only two or three individuals are said to be struck, and all the rest escape unhurt, what must be our conclusion? Is not the conclusion inevitable, where the negative instances present such a vast predominance over the positive, that the few positive ones are the result of accidental coincidence or succession, or of some other causes equally remote from contagion, which, if it were necessary, might be readily enumerated?

ART. III. *A Concise History of the Autumnal Fever which prevailed in the Borough of Wilmington in the Year 1802. By Dr. John Vaughan. 8vo. pp. 32. Wilmington (Del.) Wilson. 1803.*

A MANUSCRIPT account of this distemper at Wilmington was sent, as we have understood, to Philadelphia for publication. The author was led to believe it would have been inserted entire in a collection of essays then preparing for the press. But he was much disappointed to find that "a mutilated abstract only was published." After having asked some explanation from his correspondents concerning this manner of treating his performance, and obtaining but little satisfaction, he resolved to do himself justice by printing the whole under his own eye.

Though this is a short, it is an intelligent account of a disease which afflicted the place in which the writer resides, in the fall of 1802. It is a valuable piece of local medical history, drawn up by a physician who describes what he saw, and who lived through the scenes of calamity and terror which he witnessed. Dr. Vaughan has, however, not confined himself to a mere delineation of symptoms, and a re-

cital of prescriptions; he investigates the origin and progress of the malady, and endeavours to trace it to some external or internal source. He declares that, with all his vigilance, he cannot discover it to have been brought from any place whatever, either by water or by land, by persons or by goods. He examines, with care, the allegations against a young woman and a schooner, charged with having *imported contagion* into Wilmington; the former from Philadelphia, and the latter from Port Republican; and finds them quite unfounded in reality, no better supported than similar tales usually are. But we shall give Dr. V.'s own words. (p. 15.)

"On a review of the preceding narrative, it appears that the disease took rise in the narrow part of King-street and the adjacent district, progressing, with irregular steps, over the lower parts of the town, and finally encroaching on the district north of Third-street; but was principally confined to the district south-east of Market and Third streets.

"The more prominent facts relating to the origin of the disease stand thus:—1. Ann Davidson, the only person who was or could be suspected of introducing contagion among us, came from Philadelphia in the beginning of August, to her father's house in King-street, and was reported to be affected with contagious fever on the 15th. She recovered, without suffering any of the more violent symptoms of malignant disease, and removed into the country.

"2. The family in which she resided consisted of ten persons, all of whom remained well until the 7th of September, when her mother had an attack of fever, after a journey of ten miles into the country, performed partly on foot, and partly in an open cart.

"3. In the mean time, T. Musgrove's son, Ann Hadley, Capt. West's girl, Mr. Cloud, and Hannah Robinson, in the same square; and R. Hagin's son, J. Warner's girl, E. Dale, and others, in different directions, were attacked with malignant fever.

"4. If Ann Davidson's disease were contagious, and the only source of future disease, is it not reasonable to suppose that some one or more of the ten persons, confined in a small house with her, would have been the first affected by the contagion? The reverse was the fact.

"5. The first serious alarm of malignant fever took place in the first week of September. The cases were principally, but not altogether, confined to King-street. The square between Second and Front streets, whose filthy cellars was a mat-

ter of notoriety, and a subject of common complaint, was the more concentrated seat of disease.

" 6. The cases specified evince a correspondence of dates indicating the action of a common cause, and precluding the more slow and successive routine of human contagion, from one diseased person to another.

" 7. The disease was suspended by the great change of weather which took place on the 5th of September, and resumed a formidable shape about the 9th, and became general in the southern district against the 25th of the month.

" 8. When the disease became alarming a second time, I personally inquired into the preliminary circumstances of every case that occurred, for the purpose of tracing their origin; and none of them could be reasonably imputed to contagion from the previously sick.

" 9. The disease was evidently subservient to the states of the weather, in declining in frequency and force in warm clear weather, and re-assuming a formidable shape on every change to coolness and moisture of the atmosphere.

" On the most liberal view which can be taken of the rise and progress of the disease, with an unrestrained examination of the facts, as they occurred, I see no reason to suppose the insidious malady was of foreign origin, or specifically contagious. On the contrary, I am firmly impressed with the belief, that it was the endemic fever of autumn aggravated to a pestilential grade, by local filth, and the tropical state of the season, in conjunction with an epidemical state of atmosphere, which appears to have influenced the diseases of our country since the memorable year 1793. This belief is further predicated on the following facts and inferences.

" 1. An epidemical state of atmosphere, favouring the occurrence of malignant fever, was evinced by the usual premonitory forms of disease.

" The measles were epidemic in the fall of 1801, and declined during the winter, giving place to the scarlet fever. The last winter was unusually mild, which gave birth to swellings of the glands, croup, and the influenza, in April and May, 1802. June was, as usual, comparatively healthy, but chequered with some cases of cutaneous disease. In July the putrid sore-throat occasioned considerable alarm; and, during the latter part of July and early part of August, the eruptive state of fever was extremely afflicting to children, and seemed to supercede the ordinary appearance of cholera infantum. In some cases general ulceration of the glands of the neck and

axillæ were so obstinate as to require a complete course of alterative remedies.

" 2. The season became tropical in the middle of August. The weather, from being uncommonly cool, suddenly became extremely hot, varying from 80 to 90 deg. with frequent gusts of rain and lightning. In the evenings of the 29th, 30th, and 31st, there were excessively violent thunder-storms from the westward, with torrents of rain. It was remarkable, during the autumn, that all our sudden and violent rains came from the westward, and commonly extended but a few miles along the Delaware. In misty weather the wind was mostly north-east. But the winds were unusually variable, not unfrequently traversing the compass in twenty-four hours. The changes of the weather were proportionally sudden.

" 3. Myriads of mosquitoes infested the lower parts of the town from July until frost, having gradually diffused themselves over the borough in September. The eldest of our inhabitants do not recollect this insect's being troublesome here in any previous season; while the unanimous report of persons from the fenny counties of Kent and Sussex, the annual haunts of these winged pests, was, that they were unusually free from them.

" 4. The sources of noxious effluvia in the southern and flat part of the town were much increased by a regulation, but partially executed, for bringing the streets to an uniform descent from the summit of the hill. A number of cellars were filled with water; a new dock formed; and the gutters lowered in some-places and raised in others, forming numerous depositories of filth. These circumstances, added to the nuisance in King-street, rendered the air of that quarter offensive to the smell in the day-time, and doubly so at night. After the 15th of September the air had a taint resembling bilge-water, especially after a light shower of rain and in the night, and more sensibly recognized by persons coming immediately from a higher region.

" 5. The fogs which collected in the evenings were suspended on the flats during the nights, gradually becoming more compact in the mornings, and mostly passed off in a dense cloud towards the Delaware, between seven and ten o'clock. This semi-circuit of the fogs, from Market-street southward and eastward, was the seat of concentrated disease. Those fogs were condensed miasmata of fever in a familiar garb.

" The seat of disease was so well defined until the 15th of

October, that the inhabitants north of Third-street felt but little apprehension; and, as the fogs became diffused, a few scattering cases of disease appeared, and removal was the only mean of safety.

“ 6. The poisonous matter exciting disease was evidently a constituent part of the fogs. Many persons visited the infected district in clear weather, and in the day-time, without injury, and several of the same persons contracted disease by a single exposure in the night-time, after the fog had collected. It also is remarkable, that the disease generally attacked in the night-time.

“ 7. The non-contagious nature of the disease was repeatedly attested by persons sickening after removal from the lower to the higher parts of the town, and being nursed with every attention, and dying without communicating the malady to their attendants. Also, two sailors had the disease, on board of different vessels, at separate wharves, without affecting their companions.

“ It is not denied that the more malignant cases of disease may be incidentally contagious, or rather re-infectious, under circumstances favouring a new chemical combination of the venomous offsprings of filth and putrefaction.

“ 8. A noxious state of atmosphere was manifested by the lingering state of convalescents who remained in the contaminated region, while those who removed into the country were speedily restored to health.

“ 9. The indigenous nature of the disease was evidently characterised by the ultimate sameness of every form and grade of fever. After the middle of September, the subordinate forms and grades of fever, not arrested within 48 or 72 hours, invariably passed on to the malignant grade of disease. No matter how slight the attack, nor who the subject, the livery of pestilence sooner or later appeared: and valetudinarians, cases of pulmonary consumption excepted, suffered in the common fatality.

“ Lastly. The rise, progress, and confined state of the disease; the manner in which the fluctuating malady corresponded with the varying states of the weather; the non-communication of disease to the attendants on the sick, when out of the original sphere of infection; and the sporadic appearance of disease in other parts, after the more extended fog on the fifteenth of October; with the final termination of the progress of infection by a single frost—are, in my opinion, evidences striking as the nature of the case will pos-

sibly admit, that the multiform disease which afflicted us was not of foreign origin, nor specifically contagious.

"Believing that a proper attention to the internal condition of this borough, and preserving the adjacent marshes in their present state of cultivation and improvement, by numerous drains, would be the surest means, under Providence, of securing us against a repetition of the calamity,

"I am, gentlemen, with sentiments," &c.

We think Dr. V. is entitled to much credit for the impartiality and intrepidity he has shown, and we hope his conduct will be an example to other gentlemen in the profession to observe, and relate what they shall see, with equal fidelity. We shall thus, by degrees, correct a considerable part of the errors which overhang the history of febrile distempers.

ART. IV. *An Essay on the Mineral Properties of the Sweet Springs of Virginia, and Conjectures respecting the Processes of their Production by Nature; together with Hints relative to an Artificial Formation of similar Medicinal Waters: to which are added a few concise Strictures on a Treatise composed by John Rouelle, M. D. on the same Subject. By Dr. John Baltzell, Frederick-Town, Maryland. 8vo. pp. 30. Baltimore. Warner & Hanna. 1802.*

THE Sweet Springs in Virginia, like those near Ball's-town and at Lebanon, in New-York, are become a place of very fashionable resort. Both the healthy and the valetudinary frequent them, during the warm season, in great numbers. They have therefore become so much the subject of conversation, that it is now very desirable to know the chemical history of the waters themselves, and the topographical account of the region which they irrigate.

We remember to have seen, some years ago, in Carey's *American Museum*, if we recollect right, some experiments on these waters, by J. Madison, Esq. These, if we are not mistaken, were copied from the second volume of the *Philosophical Transactions*. Dr. Rouelle published certain experiments on them in 1792; and on these the author makes criticisms and strictures in the postscript to the present pamphlet.

Dr. Baltzell does not appear to have visited the springs themselves: he therefore has not the advantage of an observer upon the spot. His experiments were not made upon the water recently drawn from the fountain, but upon the fluid, "conveyed to Frederick-town, in Maryland, in a bottle well corked

while immersed in the springs, and further secured by sealing-wax to prevent the escape of the aëriform principles."

The pamphlet now under review contains the description of the Sweet Spring water, and the experiments made upon it by Dr. B. as he received it, after transportation miles. This account will be best understood in his own words:

"It is very limpid and clear, and to my tongue has an astringent subacid taste. Its transparency evinces, how perfectly it holds its mineral properties in solution: I could not discover that it deposited any sort of sediment in the bottle, and observed no discolouration, by which it might be distinguished from common spring water. Several wine-glasses were used on the occasion, in which the experiments were separately conducted, and the effects of each TEST were carefully distinguished and ascertained. The results were as follow:—

"*Exp.* 1st. A few drops of the muriate of barytes, let fall into some of this water, yielded a white cloud; an infallible evidence, that the sulphuric acid is one of its mineral principles. Such is the attraction of the barytes for the sulphuric acid, that the latter seizes the former in whatever combination it is presented to it, and forms an insoluble compound, called sulphate of barytes or ponderous spar.

"2d. The prussiate of lime, being dropped into some of it, afforded the prussiate of iron or Prussian blue, with a quantity of rust-coloured matter of less specific gravity. This indubitably detects the presence of iron. The prussic acid, seizing on the iron, produces the prussian blue; while the sulphuric acid of the martial vitriol, seizing on the lime, disengages the iron; which, not finding sufficient prussic acid to unite with, falls down in the state of calx or oxyd. I suspect also, that some of the carbonic acid gas abandons its union with the iron, and makes its escape in an elastic form in this experiment.

"3d. A solution of carbonate of potash, being poured into it, produced a white precipitate. This solution being a test whereby to discover as well the combination of magnesia with the sulphuric acid, as that of alumine or pure clay with the same acid, we were determined, by our taste, to believe it to be the alum. The potash seizes on the sulphuric acid, while the carbonate of alumine is precipitated. The magnesia turns the tincture of turnsole of a slight green: an evaporation of the water from the precipitate, and repeatedly washing it with distilled water, and after calcining it to dissipate the carbonic acid, subjecting it to the test, would ascertain the presence of magnesia, if doubts were entertained as to the alumine.

" 4th. The oxalic acid, dropped into it, yielded a white precipitate, which demonstrates the presence of lime, as the acid seizes on lime in all combinations forming an insoluble compound, called the oxalate of lime.

" 5th. The nitrate of silver, or solution of silver in the nitrous acid, produced a small luna cornea, like a white cloud in the water; indicating a small portion of muriatic acid or spirit of sea salt united to some base. In this experiment the muriatic acid seizes the silver from the nitrous acid, on account of a stronger affinity, forming the luna cornea; while the nitrous acid attacks its base, forming some compound, perhaps nitrate of soda.

" The foregoing are the fixed mineral properties, which were detected in the manner we have described; two volatile principles, of a distinct nature and quality, were also discovered to be contained in this water.

" *Exp.* 6. A few drops of a solution of caustic lime being let fall into it, yielded a white precipitate. The lime is seized by the carbonic acid gas, or fixed air, which appears to be in this water in considerable quantity: this precipitate is the carbonate of lime.

" 7th. By writing on clean white paper with a solution of acetite of lead or saccharum saturni, and confining it over this water, poured out and agitated in a wine-glass, the letters turned of a dark ferruginous hue; showing, beyond the possibility of a doubt, that it holds, suspended in it, a quantity of the sulphurated hydrogen gas:—The hepatic smell is an additional proof, if it needed any, of the presence of this gas in the water.

" If any one be disposed to perform experiments with this gas, he may obtain it, by pouring muriatic acid, or any other acid, or the hepar sulphuris, or liver of sulphur: by this the solution of sugar of lead becomes an elegant sympathetic ink.

" 8th. The alcohol of galls poured into this water produced no change: owing probably to my not employing enough of the infusion, or perhaps to the superabundant fixed air in it.

" 9th. The solution of ammoniac or aqua ammoniæ, which is used to detect copper, mixed with it, without effecting any alteration in the appearance. We had not a sufficient quantity of the spring water to attempt a further analysis, by the process of evaporation; in which case, the fixed saline and earthy principles might have been subjected to tests, applied in different forms.

" The accuracy of discovering the mineral properties of

waters by re-agents, being called in question by several chemical writers, and this being the only method at present in our power, I thought it necessary to essay this method, by synthesis, in artificial solutions of alum and copperas: I accordingly made a solution of copperas and of alum, in separate phials, and performed the following experiments with the same tests, which I employed to detect the fixed mineral properties of the Sweet Spring water.

“*Exp.* 1st. I poured a part of the two solutions together, and, into this mixture, I dropped the prussiate of lime; when a beautiful Prussian blue diffused itself throughout, without yielding any kind of rust-coloured precipitate; which circumstance further confirmed me in my reasoning on that experiment and in the persuasion of the presence of carbonated iron ore in the natural mineral waters.

“2d. The muriate of barytes, dropped into this mixture, produced a heavy precipitate, the sulphate of barytes or ponderous spar.

“3d. A solution of carbonate of potash, poured into a solution of copperas, precipitated a ferruginous sediment. But,

“4th. Being poured into a mixture of the two solutions, it yielded a white precipitate, as it does in the water of the Sweet Springs: this, I was positive, could be nothing else but the carbonate of alumine.

“I have fully stated, in the preceding pages, the experiments and manner of conducting them; as also the grounds and reasons of my conclusions: I have endeavoured to exhibit a complete view of the processes of my analysis for the critical inspection of such chemists as may be disposed to examine its merits, or improve the method I employed in conducting it. The striking coincidence of the results of my synthetical experiments with those performed on the natural mineral waters appears to me a strong demonstration in favour of my conclusions; according to which the water of the Sweet Springs contains the following mineral properties:

“Carbonated iron ore, Copperas, Alum, Fixed air, Sulphated hydrogen gas, Carbonate of lime, and the Muriatic acid united to some earthy or alkaline base, perhaps soda, in a very small proportion: these two last, carbonate of lime and the muriate, are also found in various quantities in the well waters of Frederick-Town, and, I suppose, bear no part in the medicinal virtues of the Sweet Springs.

“I would not venture to assert, that these are all the mineral principles contained in the water of the Sweet Springs: it

would require a nice experimental investigation, conducted at the spot, and frequently repeated in every modification, before that could be confidently pronounced: I have confessed my ignorance of the base of the muriatic acid, and, in the subsequent part of my observations, I have conjectured, that there may also exist a portion of sulphate of lime or selenite in the waters, on grounds which are there stated. A quantity of the water, conveyed in a bottle holding about two pounds, must have been considerably agitated in a journey of upwards of two hundred miles: the æriform principles would naturally rise in an elastic state, ready to escape on drawing the cork; and we were sure, that part of them did escape, from the whizzing noise produced on giving vent, when it was opened for the purpose of experimenting; consequently, nothing definite could be advanced as to their quantity and proportion in the water, as it is drank at the Spring-head, where, however, these, as well as the fixed mineral properties must always vary, according to the quantity of rain that falls, and the humidity, dryness and temperature of the atmosphere. We did not attempt to ascertain its specific gravity, which was omitted as a matter of little importance; since it could not have been esteemed accurate, on account of the escape of part of the volatile principles: and the temperature of the water must be determined by a thermometer immersed in it at the fountain head.

The temperature and specific gravity of the Sweet Spring water was ascertained by J. MADISON, Esq. who communicated an account of the experiments in a letter to Dr. RITTENHOUSE; which was published in the 2d vol. of the Transactions of the American Philosophical Society, of which the following is extracted.

“*Exp.* 1st. ‘Having plunged a very sensible mercurial thermometer in the Spring, it stood at 73 deg. the temperature of air was about 69 deg.

“2d. ‘A good hydrometer sunk one-twentieth of an inch deeper in common mountain water than in the spring.”

It would give us great pleasure to see a correct and detailed account of the region in Virginia where the springs exist, and of the waters themselves. And we entertain the hope, that Dr. B. who has done so well with a bottle of the water brought a considerable distance, will take an early opportunity of travelling to that genteel place of resort, and of observing, at fountain head, whatever shall present itself to the eye of the chemist and natural historian.

ART. V. *The Charleston Medical Register, for the Year 1802. By David Ramsay, M.D.* 12mo. pp. 22. Charleston (S.C.) Young. 1802.

THE author of this pamphlet has been long so respectably known to the people of the United States as a writer and a practitioner of medicine, that to announce a publication from his pen will be sufficient to excite the attention of our readers. We are exceedingly pleased with the plan of this Register, which comprises within a small compass a variety of important notices of subjects pertaining to medicine, and leaves us nothing to regret but the brevity with which some of them are treated. So highly prized are the abilities and experience of Dr. Ramsay, that whatever the pressure of his multiplied avocations compels him to curtail or to postpone in a performance of this kind, is felt by the public like the privation of a benefit to which a claim had been formally entered.

A view of the plan and objects of this Register will appear from the introduction prefixed to it, which we give in the words of the author:

“ Medical facts, correctly stated and diligently compared together, reflect great light on the practice of physic. Conformable to this established principle, it must be obvious, that annual statements of the principal events connected with the health of the inhabitants, made by physicians in different places, would be particularly useful. The more extensively this was done, the better; but in the United States the advantages of such publications are enforced by peculiar considerations. In the old world the attention of learned men has been employed, for many centuries, in applying the general principles of medical science to the local peculiarities of each particular spot. Knowledge of this kind, in America, chiefly rests with individuals. To bring it within the reach of the community, requires the joint labours of practitioners in every part. If one physician, in each of the cities and towns of the United States, and several in the country parts of each state, were to favour the public with an annual account of the state of diseases, and of the circumstances connected with them, as far as their observations extended, there would, in time, be an accumulation of materials, from which we might obtain the following advantages:

“ 1. More correct knowledge of the diseases of the United States.

" 2 A comparative view of the health and longevity of the inhabitants in different places.

" 3 Authentic evidences of all changes of the climate that took place; and particularly of the effects produced on the health of the inhabitants from clearing and cultivating the soil, and from the different modes and articles of culture.

" 4 Persons labouring under any constitutional predisposition to particular diseases might select, with precision, a place of residence, least likely to call into action the particular predisposition under which they laboured. Such is the extent and variety of climates in the United States, that this might be done in almost every case, without changing the government or language to which persons proposing a change of residence were accustomed.

" 5 Physicians would be enabled to direct invalids to such a route in travelling as would best suit their particular habits and diseases. From the want of this local knowledge, improper advice is frequently given. The longitude and latitude of places afford no certain rule. Their influence, controuled by a variety of local circumstances, is by no means uniform.

" The advantages of the proposed annual publications would not be confined to the medical department. The farmer and gardener, from an average of seasons, would be assisted in forming their opinion of the best time for their respective operations.

" The enterprising agriculturist, who wished to enrich his country with some new productions, would be informed when and where to make his experiments, by comparing the observations auxiliary to the practice of physic, with the usual habits of the particular commodity he wished to introduce.

" A facility might thus be given to the introduction of ginger, japan sago, of the almond, allspice, caper, clove, cinnamon, camphor, nutmeg, red cotton trees, and several other valuable exotics. There are, doubtless portions of the United States suitable to the culture of these articles; but that suitability is unknown to foreigners, and equally so to the owners of the soil. The same observation applies to the introduction of new animals, and of new branches of manufacture. Success, in both cases, must be materially influenced by the degree of heat and cold, and of the moisture and dryness of the atmosphere.

" The foreigner, who wished to remove to this land of equal rights, would also be enabled to determine where to locate himself, in a situation least variant from his trans-atlantic residence."

The following account of the diseases which chiefly prevailed in the course of the year is presented to our readers:

"Charleston, in the year 1802, was afflicted with four epidemics; the small-pox, the measles, the influenza, and the yellow fever. There were cases of the small-pox in almost every month of the year. It proved fatal to four children, though inoculated for it by skilful physicians; and also to about twenty other persons, who took it in the natural way. These died under circumstances horrid to see, and painful to relate. Covered with confluent sores, they could neither stand, sit, nor lie, without exquisite pain. Their bodies and bed-clothes were stiffened with foetid discharges from every part of their skin. The whole emitted a stench intolerable to bystanders. Humanity was put to the rack while it discharged the offices necessary for their support. In one case, an unfortunate negro (who caught the disease, remote from help, and unknown to his owner) was so far bereft of all power to help himself, that rats devoured a large portion of his *Tendo Achillis* some days before he died. The recoveries from the small-pox were much more numerous than the deaths. Though in many cases, the subjects of the former suffered comparatively little, there were others who escaped with difficulty, and after a painful and distressing confinement.

"A considerable number, (supposed to be no less than twenty) took the small-pox in the natural way, after having been inoculated for it, and after medical practitioners had declared that they had the disease. One of these unhappy patients died, and others suffered more from it, in consequence of no pains having been taken to obviate a malady, from the attacks of which they supposed themselves to be free, till its advanced stages evinced the mistake.

"The general complexion of the diseases, for the first seven months of the year, was inflammatory. Pleurisies, acute rheumatisms, and complaints of the breast, were uncommonly frequent. From these precursors, some predicted a sickly summer, and a great prevalence of yellow fever; but they were agreeably disappointed. July, and the first seventeen days of August, were cool and healthy; there was only one day in both months in which the mercury in Fahrenheit's thermometer reached eighty-nine. The old inhabitants were generally free from diseases of every kind; and only two strangers died of the yellow fever before September. Fourteen of the last days of August, and the twenty-two first of September, were steadily warm; but not to so great a degree as in some former years.

In only three of them (the 26th of August, and the 14th and 15th of September) did the mercury rise as high as 89. On the other hand, in only two of them (the 5th and 6th of September) did it fall below 80. In this warm season the yellow fever began to extend, but was less mortal than usual. More than half who were attacked by it recovered. The mode of treatment, which seldome failed, was depletion, followed by a mercurial salivation. There were a few, and only a few cases, where calomel produced its usual effects, in which the patient did not recover. Where the disease proved fatal, its superior excitement rendered this and every other medicine comparatively inert.

"A few strangers, though from northern latitudes, passed the summer (their first) in Charleston, without being attacked with the yellow fever. In three cases it proved fatal to persons who had resided in this city for eighteen months immediately preceding. No instance occurred of the death of any under twelve years of age from this disease.

"The eagerness of the people to receive their winter goods early in the season, induced men in trade to order matters so, that several vessels from foreign ports arrived in Charleston, with their unseasoned crews, in the months of August and September.

"To such the yellow fever was particularly inhospitable. To others arriving in the same season, Sullivan's Island afforded a safe retreat, till the danger was over. Exceptions to this have heretofore been very rare, and generally could be accounted for from some irregularity; but in the year 1802, five cases of the yellow fever (and two of them fatal), occurred in one house on that island, while the other inhabitants were generally healthy.

"No instance can be recollected, in which there was any ground to suppose that the yellow fever was either imported or had been contagious. No physician, nurse, nor other person exposed to contagion, from their intercourse with persons labouring under yellow fever, caught the disease. It was exclusively confined to strangers; and among them there was no evidence of its being communicated from one to another."

The introduction of the vaccine disease into Charleston is stated to have taken place in February, 1802, and to have succeeded in the most perfect manner. The author thinks that "nothing is now wanting to exterminate the small-pox but a general and simultaneous vaccination."

Among the medical improvements made in Charleston in the

year 1802, Dr. R. mentions the establishment of a Dispensary, and the more active and energetic proceedings of the company incorporated in 1799, for the purpose of supplying the city with wholesome water from a pure and sufficiently distant source.

A regular series of meteorological observations is likewise included, which appears to have been made with great accuracy, and which affords a very satisfactory account of the temperature, &c. during that year.

The following interesting particulars of an attempt to rob the bank of South-Carolina, will, we are confident, appear to all our readers to be deserving of especial notice.

"On the night of the ninth of October, 1802, William Withers, a horse dealer from Kentucky, descended through a grate into one of the covered arch drains that pervade the streets of Charleston, and passed along the same, till he was opposite to the South-Carolina Bank. He then began operations to make a subterraneous passage across from the drain to the vaults in which the cash of the bank was deposited. In prosecuting this business, he passed ninety days and nights under ground, and in a prone posture. For the first twenty-two days after his descent, it was so uncommonly warm, as to be on an average nearly seventy-nine. For the last sixty-eight days the heat varied from seventy-four to thirty-three. In the first period, yellow fever, intermitting, and other fevers of warm seasons, were common among the inhabitants. In the last period, pleurisies, colds and catarrhal complaints, were, in like manner, frequent: yet, all this time Withers enjoyed good health, with exceptions of a few slight head-aches and pains in his bones, which generally went off with perspiration in the course of his next repose. His situation in the drain was distressing; but it was tolerable; after passing through it, he was surrounded with earth. He had no blanket, nor covering of any kind, but his light ordinary apparel, which he had never put off. His usual time of sleeping was when he judged it to be day, from the noise he heard over his head. His signal for recommencing work was the receipt of provisions, dropt by his accomplices, in the night, through a grate. He was sometimes exposed to serious danger from the springing of water; and his bed was earth, which was often damp. His food was mostly bread, butter, and cheese, and (with the exception of one bottle of wine) water was his only drink. Butter burning in a lamp afforded him light.

"Three days frequently passed without discharging the contents of his bowels.

" The enjoyment of so much health, for so long a time, under such circumstances, was, in part, probably owing to the following causes :

" 1 A strong constitution, inured to hardships in every period of his life.

" 2 That constitution suited to the air of Charleston, by a very recent seasoning. He had but just recovered from a severe fever when he entered the drain. Though relapses are not uncommon, yet a new and distinct fever scarcely ever attacks strangers in the same summer, in which they receive their first serious impressions from our climate.

" 3 The effects of moisture must have been, in a great degree, parried by his labour, and the moisture itself moderated by the dry sandy nature of the soil through which he had to work, and by the absence of rain: For the first fifty days after his descent, the whole quantity of rain that fell did not amount to two-tenths of an inch; and in the last forty was only five inches eight-tenths; besides, simple moisture, without heat or miasmata, is comparatively harmless.

" The absence of several of the exciting causes of diseases. The heat of well water and of the earth, a few feet below the surface, is generally the same in all countries as the medium heat on an average of the different seasons in these countries respectively. This, in Charleston, is sixty-five, or, at most, sixty-six on Fahrenheit's thermometer. Withers must have enjoyed a steady unvarying atmosphere of this temperature, while the inhabitants above ground were panting under a heat of eighty, or distressed with the cold of thirty-three, and subject to all the changes of an atmosphere, vibrating from one extreme to the other. That something in the air of Charleston, which is so destructive to strangers, in the summer and autumn, is too volatile to descend below the surface. Miners and colliers, in all countries, are generally healthy.

" The experiment is not recommended; but it is probable that a subterranean residence might be so constructed as to afford security against our local diseases.

" The great excitement of Withers' mind, from the prospect of accumulating wealth, must have counteracted the effects that otherwise would naturally have resulted from his situation. The energies of human nature, when in pursuit of a great object, (especially if invigorated with the hope of obtaining it) are beyond all calculation. The weakly wife, and the tender mother, will undergo watchings and fatigues in nursing the object of their affection, far beyond the power of hu-

man nature to bear, when in a state of indifference. The high toned state of Withers' mind must have had a decided influence in preserving his health: It is much to be regretted that it was not excited by worthy objects."

We hope the author will be induced, by the considerations which he urges with so much force and good sense, annually hereafter to continue this Register; and that other physicians, in different parts of the United States, will become emulous to follow his good example.

MEDICAL & PHILOSOPHICAL NEWS.

DOMESTIC.

PYRITES CONVERTIBLE TO MANURE.

Extract of a Letter from the Hon. ROBERT R. LIVINGSTON, Esq. Minister Plenipotentiary from the United States near the French Republic, to Dr. BENJAMIN DE WITT, Secretary to the Agricultural Society of New-York, dated Paris, October 10, 1802.

IN an excursion I lately made into Flanders, at some distance from the road, I observed several large beds of earth, that appeared to me to emit smoke and flame, which two men were tending. I stopped the post-chaise, and went to examine it. I found that it was pyrites sufficiently impregnated with sulphur to burn when dry. This was laid into beds, and fire set to it. They endeavoured to extinguish the fire when the ashes was red. If it burned longer it became black, and the quality of it was not so good. This earth, so burnt, was easily reduced to powder by a wooden mallet, and in this state was carried upon the backs of asses forty or fifty miles as a manure, and was used, particularly for grass, at the rate of about six bushels to the acre. The seed-grain was also covered with it as with gypsum in our country. This circumstance induces a belief that the *sulphuric acid is, both in this and in the gypsum, the fertilizing principle*, and may suggest many other ways of applying that cheap material to the purpose of agriculture. It is presumeable that in this very slow combustion the sulphuric acid is absorbed by the ashes, or rather earth, while the inflammable matter is dissipated, and that the union of the alkali and the acid forms a salt, not unlike, in its chemical relations, to gypsum; or, perhaps, one that is more soluble, more impregnated with the acid. Perhaps diluted vitriolic acid, directly applied, would be found equally useful, or rendered more valuable by being combined with wood ashes, when native gypsum could not be conveniently had.

If I rightly recollect, Du Hamel mentions that sulphuric acid, scattered over weeds with a view to destroy them, made them grow with additional vigour. And at Amsterdam I

found a number of vessels waiting for the ashes of the turf, the principal fuel of that place, and which is supposed to contain sulphur. This is purchased at a high price, and is carried into Brabant and Flanders as a manure, and must come extremely high to the cultivator, because of the time that vessels are in waiting before they can receive a load, as it is sent them every day, as slowly collected from the inhabitants—a very judicious regulation prevailing here, which I could wish to see extended to all our large cities. It is found, with us, that the want of proper repositories for ashes frequently occasions dangerous accidents. In Amsterdam the city is divided into many rounds. A cart goes every morning to each house, and receives the ashes, which it carries to the vessels in waiting, and receives the price. A considerable revenue is derived from this object; and this tax is clear gain to the rich, whose servants would receive the ashes, as with us, as a perquisite, and burn a considerably greater quantity of fuel to increase it.

From the place where they were burning the earth I proceeded to the ore-bed, which I examined, and found the earth very similar to what I have seen on my own estate in Clermont, and which may, indeed, be found in many of our black meadows. I send you a sample of the earth as a guide to search for it at home. Many of our fellow-citizens will, I dare say, know where to find it. I also send a sample of the ashes. I would recommend to the Society to have some experiments made on this interesting subject; first, by searching for a similar earth, drying, and laying it in beds of about a foot thick, and burning it, occasionally stirring it with a rake; then pounding and sifting it in a lime-seive. If the earth should be too inflammable, perhaps a mixture of lime, which it would convert into gypsum, or wood-ashes, would be found useful. Secondly, by trying the effect of diluted vitriolic acid as a manure singly, or mixed with ashes. Thirdly, if it is clear that this acid is a fertilizer, to endeavour to find one that is still cheaper, and that might be found still better, as it had comprized already a constituent part of vegetables. The pyro-lignous acid may be obtained at almost no expense, by converting wood into charcoal in a pile, and condensing the vapour. The charcoal would defray the expense of the operation, particularly where wood was cheap. If the pyrites is in lumps, it must be reduced to a coarse gravel before burning.

Speculations on Magnetism, by Dr. JOEL ABBOT, of Washington (Georgia), in a Letter dated December 24, 1802.

I have long been of opinion that the true knowledge of magnetism would afford to mankind the grand desideratum of longitude. My conclusions are from the two following considerations: 1st. That the seat of magnetic power is at the centre of the earth; 2dly. That it gives polarity and a *local meridional influence* to all bodies capable of receiving and retaining its impressions.

1. In proving the centre of the earth to be the seat of magnetic government, the first question is, Why does the magnetic needle point to the poles, if governed from the centre? According to Sir Isaac Newton, Dr. Halley, and others, there is a greater accumulation of matter about the equator than can be at the poles of the earth: hence the diameter of the earth at the poles is less than at the equator. M. Buffon says the semi-diameter of the earth at the equator is 1500 leagues, and at the poles 165th less; which makes the poles upwards of nine leagues nearer the centre than the equator. The needle then being placed horizontally, will point to the pole; it being the nearest direction on the surface to the centre.

A French gentleman, some years ago, in Philadelphia, ascended in an air-balloon, and took with him a magnet, which, at the height he went, would take up but a few more grains of iron than it had ounces at the surface of the earth. This shows that the relative difference of distance between the poles and equator, from the centre, is sufficient to give polarity to the needle, though governed from the centre. The dipping needle is only accounted for by a central magnetism; for it points below the chord of an arc from its place to the pole. The changing of the poles of a compass, on being carried across the equator from a north to a south latitude, or the contrary, is only accounted for in the same way. A bar of iron becomes magnetic the instant it is placed on the line of magnetic influence, that is, pointing with one end directly to the centre. Suspend a bar of iron vertically, and the instant it is suspended it becomes magnetic. Its lower end becomes a north pole, and the upper a south. Reverse it, and the end towards the centre will be the north pole.

Soft iron does not retain magnetism, but is very susceptible of it.—These are some of the considerations that have convinced me of a central magnetism.

2. Such bodies as are capable of receiving and retaining magnetic influence, obtain a polarity. This has been long

known; but as this influence is on all directions from the centre, the load-stone not only receives a *polar*, but a *central* and *meridional* attraction to its own body.

It is as easy to conceive a meridional magnetic impression as a polar. While the load-stone is in its bed, it receives all its properties from a natural influence it is capable of retaining. This influence passes from the centre of the earth through all bodies; and when the load-stone is impressed with it, poles, meridians and a centre, are formed at once; all conforming to the poles, meridian and centre of the great magnet of the world. The load-stone is governed by the great magnet at the centre, and this is the reason why its poles are more conspicuous than its meridian; for the poles and meridian of a load-stone are governed by the poles and meridian of the great magnet. The poles of a load-stone are two points, and governed by the two points of its sire: the meridian is a surface, and governed accordingly. Hence the poles of the load-stone have been noticed, but not its meridian.

The place on the earth where the load-stone is impressed is its primary meridian, which meridian is as fixed as its poles, and will last as long.

From hence I conclude that a load-stone of equal texture, moulded in the form of a globe, will revolve once on its axis on being carried once round the world. The local influence it has obtained on the meridian where it was impressed, will direct that meridian on the ball to its native one, when carried to the east or west. When the magnetic ball (of the above description) is made, and floated on fluid mercury, its meridian is the true meridian of the place it is then in: its poles will conform to the poles of the world. Draw longitude lines from its poles, lines of latitude and the great circles, and I clearly believe it will give both the latitude and longitude to the place it is in. The north pole will sink in a north latitude, and the south will be elevated in the mercury, like the position of a rectified artificial globe, to any latitude. When it is on the tropic of Cancer, the tropic of Capricorn will be its zenith; and, if carried to the north pole of the world, its south pole will be its zenith. Its native meridional impression will be as permanent as its polar, and govern it, on an eastward or westward direction, upon the same principle that its poles point north and south. When it is carried ten degrees east, its meridian will be turned ten degrees west.

An artificial magnetism fixes the same principles in steel that are acquired by the load-stone. Therefore, a globe of steel-

plate, well impressed, would prove to be the paragon of longitude. Two or four pieces of plated steel, of equal thickness, might be made into a globe. Two small drilled holes might be made, deep enough to admit of two pivots opposite to each other on the ball, by which it would be suspended, and serve for points to begin the impression from. If the globe, after being well polished, will rest at any point where the finger leaves it on the pivots, or on quicksilver, it is well formed. Then give it the magnetic impression from pole to pole, and if it rests in only *one position*, and easily recovers it on being moved, it is the true magnetic atlas.

I am fully aware that doubts are entertained of a meridional magnetic attraction; but were I not convinced of the truth of its existence, I should not write in such sanguine terms. The many circumstances and experiments which I have received as good evidences in point, could not be detailed in a letter sent by the mail.

B. HENRY LATROBE's *Description of the Schuyler Copper-Mine in New-Jersey.* Written in 1796.

The Schuyler Copper-Mine, situated between the Rivers Passaic and Hackinsack, near their confluence, in the State of New-Jersey, was discovered, about the year 1719, by Arent Schuyler, grand-father to the gentleman of that name now living. The ore was found where it appeared on the side of the hill; was easily raised; and, as the policy of England, at that time, prohibited the establishment of smelting works or manufactories in her colonies, it was packed in casks, each containing about four hundred pounds, and exported, in its state of ore, to England.

It appears by his books, that, before the year 1731, Arent Schuyler had shipped 6933 casks, making about 1386 tons of raw ore, to the Bristol Copper and Brass Company. His son, Col. John Schuyler, prosecuted the work with more numerous and skilful hands. The quantity of ore raised by him is not known, as his books were lost during the war.

In 1761 the mine was leased to a company who procured the assistance of Mr. Hornblower, the uncle of the present eminent steam-engineer, from England. They erected a steam-engine of the imperfect construction then in use. The engine-house, composed of combustible materials, was soon afterwards burned down. It was, however, rebuilt, and the mine was worked for four years with great advantage and profit. In 1765 a workman who had been dismissed set fire to the

engine-house. It was again destroyed, and the works were discontinued by the company.

Several gentlemen in England, however, whose connection with the company had taught them the superior quality of the ore of Schuyler's mine, applied successfully to the crown for permission to establish works in America for smelting and refining copper; and an offer was made to Mr. Schuyler to purchase the whole estate containing the mine, for the sum of £100,000 sterling. This offer he refused, but agreed to join them in rebuilding the engine and working the mine. The disputes which arose about that time between England and America, and the consequent revolutionary war, put an end to the projected works; and the deranged state of the country previous to the adoption of the Federal Constitution in 1788, and other subsequent circumstances, occasioned the total neglect of this in every respect important mine, until the year 1793, when a company was formed, who undertook the work with new vigour.

They collected, at a very considerable expense, miners and smelters from England and Germany; purchased a freehold estate convenient for the erection of furnaces and manufactories, with an excellent stream of water; re-erected the engine; and began, and partly completed the other works. At the instance of Mr. Longworthy, an active member of the company, who, to great metallurgic knowledge and experience, and to much personal address, joined a spirit perhaps much too unbounded in its projects, and far outstripping the means and wants of our present population, an application was made to congress, in 1796, for an exclusive right to search for and work all mines within the N. W. and S. W. territories, belonging to the United States, for thirty years. This monopoly was to descend from mines of gold and diamonds down to clay-pits and slate-quarries. The application was not, and, perhaps, ought not to have been successful. Soon afterwards one of the proprietors of the mine, who was a principal shareholder in the company, died, and the whole interest of the company has since been purchased by Nicholas I. Roosevelt. No other has yet been wrought to effect in North-America.

The ore of Schuyler's mine yields, in each hundred pounds of copper, from four to seven ounces of silver, and, like most copper ores, a small portion of gold. At the time when pure copper was sold in England at £75 sterling per ton, the ore of Schuyler's mine was shipped for England, at New-York, at £70 sterling per ton. This proves the uncommon richness

of the ore, and the small expense of converting it into metal. An offer has been lately made by Messrs. Bolton and Watt to purchase all the ore which can be raised, and to enter into contract for that purpose.

Some Account of the Black-grass of Long-Island; in a Letter from JOHN SMITH, Representative in Congress from the State of New-York, to JOHN STRATTON, of Accomac, Representative from Virginia, dated Washington, January 3, 1803. Communicated to Dr. MITCHILL.

SIR,

In compliance with your request, I now attempt to give you some account of the grass known on Long-Island by the name of *black-grass*.

Black-grass has never, to my knowledge, been propagated, as other grasses commonly are, by sowing the seeds; yet I have no doubt that it may be produced in that way.

I have never been able to learn by what means it was introduced on Long-Island, nor how it was originally cast upon the shores of New-England, where it also grows. All with whom I have conversed on the subject seem to agree that it is a modern grass, or one lately introduced among us. I cannot find that it has been known more than sixty or seventy years on Long-Island.

During that time it has been gradually progressing from the westward. The seeds not having been conveyed by the hand of man, have evidently been carried *by the tides* from one place to another.

At this time, large quantities of hay are made from *black-grass*, on farms where ten or fifteen years ago it was unknown; and it is annually increasing and spreading over our marshes where the seeds happen to lodge.

Its native soil is neither upland nor low marsh; generally it grows and thrives best on land that is overflowed at least as often as once a year with salt-water, or is often wetted with brackish-water: to give perhaps a better description, *black-grass* grows on land too salt for clover and too fresh for salt-grass. And it is not uncommon to see a little white clover growing here and there among the black-grass, or very near it.

Black-grass affords excellent hay; it also makes early pasture, and as good as any grass whatever. When the soil is suitable, and the field is not pastured in the spring, you may expect nearly two tons of hay from an acre. It ought to be mowed about the same part of the season when you cut your

clover for hay, and managed in the same manner and with as much attention, if you would have it good.

Never having known the seeds to be sown or distributed *by art* over the land, I am somewhat at a loss for proper directions to give for the disposal of the seeds, which I have gathered for your use. It seems to me, however, best to imitate the *method of nature*, and sprinkle them over the soil in autumn, or as early in the spring as the first of March. The fall of the year is the time when the high tides and strong winds happen, which bear away the seeds from the places whereon they grow, and cast them upon the margin of the bays and upon the marshes, adapted to their sustenance and multiplication. I am, nevertheless, of opinion, that the seeds may be successfully sown in the spring.

There is no need of plowing, harrowing, or otherwise preparing land for the reception of these seeds, as they are capable of taking root and increasing without. I would recommend, in order to ensure success to your experiment with the seeds which I send you, that you should scatter them in *many* places, instead of hazarding them all upon *one*. And by attending to the intervening space of your plantations, which lies between upland on the one hand, and salt-marsh on the other, you can scarcely fail to make a proper dissemination of them.

By attention to this plain and easy method of disposing of the seeds, I am in hope that not only your own farm and neighbourhood may be benefited by the introduction of black-grass; but that the whole Atlantic coast between the Delaware and Chesapeake Bays may, in the course of time, be improved thereby.

Accept my best respects,

I. S.

HATCHETT'S ANALYSIS OF THE AMERICAN MINERAL SUBSTANCE CONTAINING A METAL HITHERTO UNKNOWN.

A very concise notice was taken of this discovery in our present volume, p. 212. Having since seen the memoir itself, as printed for the London Philosophical Transactions, we give a further account of this peculiar production. It was read November 26, 1801, and published in 1802.

In arranging some minerals in Sir Hans Sloane's Museum, now called the British Museum, Mr. Hatchett found a dark-coloured heavy substance, which, though a small specimen, attracted his attention, on account of its having some resemblance to the Siberian chromate of iron, on which he was then making some experiments. On turning to Sir Hans Sloane's

catalogue, he found the specimen described only as "a very heavy black stone, with golden streaks." These streaks were only yellow mica.

It had been sent from Massachusetts, by Mr. Winthrop, to Sir Hans, with a parcel of iron ores. The name of the place whence they were taken is noted in the catalogue, though the characters are scarcely legible. As far as it can be made out, it reads "Nautneague." From the same place, it is probable, more of the like ore can be obtained. This is particularly desirable, as Mr. Hatchett has had so small a piece to work upon, and no other specimen, but the half which he reserved for the museum, is known to exist. We hope the gentlemen of Massachusetts, who respect Mr. Winthrop's memory, and are acquainted with the scope and direction of his researches, will find out the mine, and procure more samples of this singular mineral. We think this matter would not be unworthy of that excellent institution the Historical Society.

His experiments appear to him to show, that this kind of ore "consists of iron combined with an unknown substance, and that the latter constitutes three-fourths of the whole. This substance has proved to be of a metallic nature, by the coloured precipitates which it forms with prussiate of pot-ash, and with tincture of galls; by the effects which zinc produces when immersed in the acid solutions; and by the colour which it communicates to phosphate of ammonia, or rather to concrete phosphoric acid, when melted with it." The new metal retains oxygen with great obstinacy, and is therefore very difficult of reduction. It is acidifiable; for the oxyd reddens litmus-paper, expels carbonic acid, and forms combinations with the fixed alkalies. Still it differs, in many particulars, from the other acidifiable metals of arsenic, tungstein, molybdæna and chrome. And it is yet further removed from the newly-discovered metals of uranium, titanium, and tellurium.

No complete disoxydation of it has as yet been effected. The pure metal, therefore, has not been seen, even by Mr. Hatchett himself. And if this discerning experimenter had succeeded in freeing the metal from its oxygen, the quantity he worked upon was so very small, that it would have been impossible to have gratified many of the curious by presents. At this time it is not known what quantity may exist in nature, nor to what economical uses it may be applied.

While we express our hopes that the whole history of this Columbian mineral will soon be made known, we sincerely

deplore the afflicting and untimely death of our friend and countryman, Mr. THOMAS P. SMITH,* from whose industry, acuteness and zeal in chemical (and, indeed, almost the whole circle of physical) researches, Mr. Hatchett informs the Royal Society he had anticipated important aid in this inquiry.

* We think it only a tribute due to justice, on this occasion, to insert the following account of a gentleman, whose memory we cherish with warm affection, and whose fate will be a subject of lasting regret to every friend of science in this country.

"City of Washington, October 8, 1802.

"Died on the 22d ultimo, at sea, THOMAS P. SMITH, in consequence of the bursting of a gun.

"Few men merit, and still fewer obtain, a long posthumous fame. Their virtues and talents are generally derived from local or temporary events, with the benefits of which they are forgotten. But the subject of these remarks lived not for himself, the particular spot that gave him birth, or the country of which he was proud to be a citizen. His heart exulted in the happiness, and sympathized in the miseries, of all mankind; while his mind exerted its great energies in their service.

"Before he reached the period of manhood, he abandoned the frivolous sports of youth, and applied himself to science. With but feeble advantages of education, at eighteen he was a respectable mathematician, and at twenty an eminent chemist. From this period, nature, in all her forms, attracted his attention, and he incessantly mingled the labours of the closet with an observation penetrating, practical and profound. Shaking off the dull logic and inglorious trammels of the schools, his mind disdained other materials of judgment than well-attested facts, analysed and applied by itself.

"Though fascinated to enthusiasm with the charms of natural science, he was not regardless of moral knowledge. He was an early, uniform, inflexible disciple of republican liberty; in his devotion to which he was as firm as the rocks which he so often trod.

"Two years ago he went to Europe, principally to extend his qualifications for mineralogical and chemical pursuits. But as the powers of his mind were not circumscribed by common limits, they embraced the whole circle of science. He travelled through England, Germany, France, Sweden, Denmark, and other countries. His associates, wherever he moved, were the learned and the liberal.

"With the fruits of a wide experience, he sailed, about two months since, for his native land. He had viewed the proudest countries of Europe; but he wrote to his friends that he had seen no country for which he would consent to abandon the United States, where freedom and industry confer happiness. He exulted in the prospect of soon meeting his friends, and in passing in their society, and in literary pursuits, the remainder of his days—

"But he has been disappointed. He is gone. With the youth of five-and-twenty has perished not the blossoms, but the mature fruit of age. Eulogium is often extravagant, but truth sometimes sustains her boldest panegyric: and when she declares that Thomas P. Smith, for science, had no superiors of his age in the United States, and promised, in the progress of life, to have few equals, she pronounces the sacred language of truth."

National Intelligencer.

Violent Effects of Oxygenated Muriate of Mercury; communicated by Dr. JAMES S. STRINGHAM.

I lately had occasion to have recourse to Mr. Addington's manner of curing gonorrhœa, a particular account of which I met with in the sixth volume of the Medical and Chirurgical Review.—A married gentleman in this city had (during the absence of his wife) been attacked with symptoms of this disease. A few days afterwards he applied to me for a remedy which would remove it in the shortest time possible, as he was in daily expectation of his wife's return. He added, that should this take place before his complaint was entirely cured, his domestic comfort would be for ever destroyed. Placing some confidence in the assertions of Mr. Addington, I informed him that I did not despair of being able to accomplish his wishes in the course of a week; but that the remedies I should employ were such as I had never before used; and that, as they were violent, nothing but the peculiarity of his situation could induce me even to give them a trial. On his declaring himself perfectly willing to encounter every hazard, I immediately prepared for him three grains of corrosive sublimate, dissolved in one ounce of rectified spirit of wine: Of this solution he was to take one half at bed-time, and on the succeeding morning one ounce of Glauber's salts. On the next evening but one he was to repeat the remaining portion, with the salts as formerly. He punctually complied with these directions, and called upon me on the fifth day from the time he had taken the first dose, in no respect better than before. Considering him a proper subject for prosecuting the experiment, and wishing to satisfy myself as to the efficacy of the remedy, I ordered him, two days afterwards, to repeat the solution in the same way as before, taking the salts between each interval. On the night after having swallowed the second dose I was called upon to visit him. He had a profuse salivation, violent retching of the stomach, griping pains in the bowels, with great uneasiness in the head and throat, attended with delirium. He continued in this situation during the whole of the night; the same remedies were prescribed as though he had been poisoned by corrosive sublimate. On the next day the violence of his symptoms was considerably mitigated, and in about twenty-four hours afterwards they entirely disappeared. His gonorrhœa, however, continued precisely the same, and, in three weeks afterwards, was cured by the plan generally adopted.

From this single trial, I have no hesitation to conclude,

that the method of curing gonorrhœa, as proposed by Mr. Addington, is both dangerous and uncertain. The same objections will not apply here that were urged against the surgeon who denied the efficacy of this mode of treatment. The directions of Mr. Addington were in this case literally pursued, so far as common humanity would permit; but without producing the smallest benefit to the patient.

I wish to make this case public through the medium of your useful work, with the hope that it may be the mean of preventing any other practitioner being placed in the same unpleasant dilemma from which I have been so lately extricated.

Curious Analogy between the Motion of the Blood in the Arteries, and of Water in Troughs and Conduits; in a Letter from MOSES YOUNGLOVE, Esq. to Dr. MITCHILL, dated New-Lebanon Springs, January 15, 1803.

The ingenious and profound Dr. E. Darwin, in his *Zoönomia*, vol. i. § 12. 1 et seq. and elsewhere in his work, very rationally, and perhaps demonstratively, accounts for the systole and diastole of the heart and arteries, as well as for the alternation of muscular exertion and quiescence in other parts, by the mere principle of *animation*: but it is a curious fact, that, from some physical or chemical cause beyond my comprehension, something similar to pulsation occurs in the running of water in an aqueduct. I have observed it in several, but most frequently and particularly in the one which accommodates my kitchen, barn-yard and hog-pen. There is an uninterrupted descent of perhaps twelve degrees below the level of the horizon in the whole distance from the fountain to my house (66 rods), in which the rapid current is only broken by a watering-post, which, in a dry time, waters several fields bordering on it. As the water ascends in a bored channel on one side of the post, to the height of seven or eight feet, and descends in a like channel on its other side, I at first imagined it might be partly or wholly owing to this ascent that the flow of water in the duct is sometimes very small, slow and still, and then swift and full, with a roaring noise, and that in regular alternations of about five minutes; but I have since found that the same regular vicissitudes of flowing occur above as well as below the post.

The fountain does not afford a sufficient stream to fill the duct except in great rains; but when it runs fullest, and when it runs most scantily, the same regular succession in flowing continues.

Suppose, then, that I could construct my aqueduct anew, of some substance as flexible and elastic as a human artery, bored smaller, to fit the ordinary stream from my fountain, would not these regular alternations of flowing in it occasion a dilatation and contraction of it somewhat similar to arterial pulsation?

The above phenomenon I do not remember ever to have heard or read of; and, trivial as it seems, it may, perhaps, form a link in some important chain of research. If you think it merits publication, it is offered to the service of yourself and the public.

Botanical Intelligence from Dr. BRICKELL, of Savannah, in the State of Georgia; addressed to the Editors.

As you have evinced a disposition to gratify botanical readers, I send a description of the *Stellandria*, a new, beautiful, and very singular genus, which grows in the woods near this town; having male and female flowers on different foot-stalks.

Male. Calyx, five unequal leaves; corolla, five equal petals; five antheræ, without filaments, sitting in a velvet receptacle.

Female. Calyx, corolla and receptacle as the male.—When the flower begins to fade, the receptacle swells, discovering numerous minute germs. This receptacle finally lengthens into a common pedunculus, forming a racemus of bilocular drupes. The nuts are solitary, reniform, emarginated on one side, monospermous.

Stellandria Glabra.

Shrub twining ten feet or more up bushes or small trees; leaves annual, alternate, very smooth, narrow at both ends, (some dented and cordate at base); corolla and receptacle crimson; fruit scarlet; antheræ like golden stars set in a crimson field.

We have a new species of *Samolus*, with the germ above the corolla. This I have named *Samolus Superus*. The *Kuhnia* grows here with distinct antheræ; leaves beautifully pinnate.

Willdenow has omitted the genus *Brasenia*: and for that reason I mention that it grows in our shallow waters. It has entire, elliptic, smooth, natant leaves, peltated exactly in the centre: the under part of the leaves, and all the other parts under the water, are covered with a very thick coat of most tenacious mucus, which may, perhaps, be applied to some

useful purposes. This, and a new species of *Proserpinaca*, with finely pinnated leaves, were discovered by my friend Mr. Stephen Elliott.

POLICE OF SAVANNAH, &c. *From the same.*

Savannah is become more healthy than formerly, owing to the attention of our police, who being made sensible that putrid effluvium is capable of exciting malignant fever, have been careful to keep the town clean, and to have all putrescent materials carried out of the city every day.

Robust people, from northern climates, are liable to *coup de soleil*, from being much exposed to solar heat here. The blood rushes into the brain with such impetuosity, that a rupture of its finer vessels is apt to take place, unless relieved promptly.

Vomits in the beginning, or purges when they excite vomiting, augment the velocity of the blood, and the mischief, and sometimes produce gastritis and rupture of the finer vessels in the stomach; the effused blood mixing with the fluids of the stomach or intestines, giving the appearance of coffee-grounds in the discharges up and down.

The safest way is to attempt to lessen the momentum of the blood in the head, by opening the jugular or some neighbouring vein, and in violent cases even the vein in the arm, or some in the feet; and the bowels to be kept open. Water, in large draughts, is pernicious; but in small quantities, and frequently given, is a good febrifuge in these cases.

I was present at some experiments on the decomposition of the blood, performed by Sir Charles Blagden. Pure water, put in contact with the globule, caused the exterior pellicle to burst, on which the albumen ran out, as the albumen of a broken hen's egg, leaving the yolk, whose size is so small as to pass through the extreme vessels with facility: and as its diameter is about one-third of the globule, and globes are as the cubes of their diameters, it follows that twenty-six parts out of twenty-seven of the globule, viz. the albumen, may, when decomposed, pass off in perspiration, &c. while the remaining one-twenty-seventh part circulates without producing stimulus, by forcing through the anastomosis, as in ordinary circulation: and thus we obtain the benefit of diminishing the quantity and momentum of the blood, by a remedy the most grateful to the sick, and which, at the same time, diminishes the febrile heat.

Need I remark, that in Dr. Blagden's experiments the ap-

plication of strong watery solutions of various neutral salts did not decompose the globule? I saw the experiments repeated several times on human blood, as well as on the blood of fowls, fishes, and other animals. I therefore reject all solutions of neutral salts as simple febrifuges in these cases; although some of them are good cathartics, such as the sal Rochelle, &c.

When I find the discharges up or down effervesce with alkali, I give a solution of fixed alkali in water with the happiest effects.

Particulars of a remarkable Body of Sea-Shells, now existing in the interior Part of the State of Georgia; from a Letter of Gen. DAVID MERIWETHER, Representative in Congress from that Commonwealth, to Dr. MITCHILL, dated Washington, January 11, 1803.

The shell-banks make their first appearance on the south bank of Savannah River, near the place called *White Bluff*, about one hundred miles, on a straight line, from the seashore, and run about south-west. They are not one entire ridge; but the ground is higher, for about six or eight miles in width, than it is above or below. On this ridge the shells make their appearance, in many places, near the surface, and in others deeper. Not only the *oyster-shell* is found, but *clam-shells*, and a *scolloped* shell nearly similar to the clam-shell. Some of them are large, and appear to be entire; others cemented together. I think I have seen some of them large enough to contain the foot of a common man. I have seen the shells in different parts of the ridge, for the space of *forty miles*. They are made use of for lime, but are not supposed to afford a product so good as the common shell-lime. I have been informed that, further to the south-west, and a little above the direct course, they get a congeries of shells, which is in a rocky form, and affords a better cement. And, what is more extraordinary, at some distance above that there are several quarries of a kind of silicious stone, which has a number of all kinds of shells intermingled and dispersed through it. These are petrified, and as hard as flint. This is made use of for mill-stones, which are thought to be but little inferior to the French burrs.

SCULPTURE OF THE AMERICAN ABORIGINES.

Mr. JEFFERSON, President of the United States, has in his possession several busts, which are thought to have been exe-

cuted by the native Indians. They represent the human form almost down to the waist, and nearly as large as the life. The countenances are very expressive of the looks and character of the red-men. The wrinkled visage of an aged savage, with his peculiar cast of features, is strongly marked in one of them. These images were dug up at a place called Palmyra, on the Tennessee River. It is doubtful what kind of material they are made of. Some are inclined to think it is a solid stone, and that the figures have been worked out by the chizzel; while others believe it is a composition, and was moulded into its present forms when in a soft and yielding state. In either there is great cause for admiration, whether these pieces of imitation were fashioned by the hands of the sculptor or the potter: for as the substance is remarkably hard, the carving of it is scarcely less a matter of surprise to us than the baking of it. Whether they were intended as idols for worship, or mere likenesses of distinguished persons, is wholly unknown. And it is equally a secret to us, by what people among the predecessors of the present race of Indians such tolerable likenesses of the human head, face, neck and shoulders, could have been made.

Employment of Pot-Ash with animal Flesh, prepared and cooked for Food, instead of Muriate of Soda. (See Med. Rep. vol. v. p. 472.)

Many instructive facts are furnished by the history of rude nations. The Indian tribes of North-America furnish some very important particulars concerning the antiseptic and wholesome qualities of alkalies. Within the territory of the United States, many of the tribes, and more especially the parties on expeditions for war and hunting, are scantily supplied with common salt. Frequently their stock of that article is totally expended. The Delawares, Iroquois, Wyandots, Cherokees, Chickasaws, and Creeks, then season their meats with a form of pot-ash. As these people live chiefly upon animal flesh, it is a very natural inquiry by what means they preserve so perishable a material from corruption, and with what condiment they prepare it so as to render it agreeable to the palate and stomach. It is not correct, as stated by some writers, that because they preserve and eat their meat without sea-salt, that they employ no other kind of salt. The form of pot-ash the savages sprinkle on and mingle with the flesh of beasts intended to be eaten, is CLEAN WOOD-ASHES. When they mean to dry their meat for future use, they cut it into thin slices, and ex-

pose it to a pretty hot fire; and, during the operation, they either baste it with a mixture of the gravy or liquor that drops from it *and ashes*, or they powder it, from time to time, with the cleanest *ashes they can collect*. Thus they alkalize their dried bear, deer and bison. They find that hickory and shrubby-oak (black-jack) yield the strongest and most alkaline ashes.

If they roast their meat, they are careful to dress it frequently, as it cooks, *with ashes taken fresh from the consumed wood*. This they dispose externally on every part. A portion of it dissolves, and penetrates deep among the fibres and membranes; while the rest, united with some of the animal juices, forms a sort of saline incrustation on the outside. This alkaline condiment renders the flesh remarkably more palatable; and, what is of greater importance, reconciles it to the stomach, and prevents the ill effects it would otherwise work upon the bowels. Very commonly the Indian collects fine white ashes from the fire-brands into the palm of his left hand, and dips the morsels of meat into them from his right. For the same reason, the Indians, when they broil flesh, choose to put it *upon the hot coals, and oftentimes they put another layer of live-coals upon the top of the slice*. Thus they obtain a salting or seasoning with alkalies. It is a common practice for an Indian to apply a bit of meat, just before he puts it into his mouth, to the surface of a brand, that it may attract the ashes adhering to it, as we dip into salt. These practices have been, and are now, commonly imitated by white men (hunters, soldiers, &c.) who remain long enough in the woods to expend their sea-salt and provisions cured therewith. The *alkali of the ashes* is then resorted to, and preserves their food and their health.

CHENEVIX'S BOOK ON CHEMICAL NOMENCLATURE.

A work of 246 pages 8vo. on Chemical Nomenclature, was published in London in 1802, by the distinguished Richard Chenevix, Esq. We mention it not on account of any great merit which we can discover it to possess, but because of the great freedom with which he treats the opinions of those who have preceded him in that nice part of logic which adapts words to ideas. The author is very free in his strictures upon Dickson, Pearson, Kirwan, Brugnatelli, and some others of the neologists. And his principal aim is, if we comprehend him, to vindicate generally the French nomenclature against most of the proposed innovations and attacks, except those made by

himself; for he has a short chapter on such parts as were left defective by its authors. The cultivators of philosophical language will find a number of critical and shrewd remarks on subordinate points, but very little if any thing like radical and useful amendment. For example, he suffers at this time of day the illogical and delusive term *nitrous*, with its derivatives, to stand in the nomenclature, and signify the oxygenated forms of azote; and he inclines to the retention of that most preposterous and absurd of all words, *nitrogen* (p. 67), to denote the radical of *septic acid*. He proposes *thermogen*, to express the *repelling principle* or cause of heat (p. 65). *Photogen* is offered for *light* (p. 66). *Oxygenizement* for *combustion* (p. 159), &c. He declares roundly, if pot-ash and soda are compounds, then every thing in nature is compound, and not simple (p. 69). But, after these remarks our readers will, perhaps, be desirous of examining for themselves.

METHOD OF PRODUCING LATE PEACHES.

Practical men relate that the fruit of the peach-tree can be so managed as to ripen at a much later time of the season than is natural to it. Ordinarily, the kernel whence the young tree springs, is the product of the fruit which has been attached to the branch until *fully* ripe. But the kernel can vegetate, though severed from its parent stock in an *immature* state. It is found, that the plants afforded by these unripe, though germinating kernels, become more tardy in bringing their fruit to perfection. And by attending to this particular, *late* peaches may be procured at the option of the nursery-man. By raising a *new* race of trees from the *unripe* kernels of this *late* fruit, the time of maturing will be still further *protracted*. And by continuing this process, the peaches may be so gradually retarded as not to ripen at all. The warm season will pass away, and frost come on while the peaches, in an immature state, are hanging on the branches. The application of this remarkable quality of unripened kernels is very easy and extensive; enabling the gardeners to multiply their varieties of peaches, and to prolong this short-lived fruit to the extreme term of autumn. Would not the same method of planting unripe kernels render cherries, plumbs, &c. late as well as peaches?

ASTRONOMY.

The astronomical attainments of Mr. William Lambert, of Virginia, give him a respectable place among the cultivators of science in America. He has calculated and projected a beauti-

ful plan of the great visible eclipse of the sun which is to happen on the 16th of June, 1806, for the city of Washington, in the Territory of Columbia. On this occasion the sun will be totally eclipsed at several places in the State of Ohio, and the Indiana Territory of the United States; in the northern counties of Pennsylvania; at the City of Hudson, and in other parts of New-York; at and near the northern boundaries of Connecticut and Rhode-Island; and at Stockbridge, Taunton, Dighton, and other southern parts of Massachusetts. Mr. Lambert has likewise calculated and projected a table of the total eclipse of the moon, which will happen on the 18th day of January, 1805, for the meridian of the city of Washington. This, as well as the former, is very handsomely executed. The same gentleman has done various other pieces of calculations in astronomy, which do credit to his talents, and, as we are informed, is engaged in other researches and calculations.

AN IDEA OF THE RATE AT WHICH DISTILLED SPIRITS ARE CONSUMED IN THE UNITED STATES.

As a medical, commercial, and political subject of inquiry, the consumption of ardent spirits is very interesting. Economists, statesmen and moralists have long deplored the abuses of these products of the still. But it is probable the cause of their regret and lamentation will not be soon removed. As long as one class of people find a profit in distilling ardent spirits from the raw materials; a second in purchasing them by wholesale, or shipping them from country to country; and a third in dealing them by retail to those who consume them; there will be distillers, merchants, and retail dealers in abundance, to satisfy the wants of him who wishes to regale himself with brandy, gin, whiskey, &c. When we consider the great amount of these articles brought to market, and reflect that they are all destined to pass into the human stomach, it becomes interesting to know minutely the rate and manner of their consumption. The following may serve as an example of what is frequently done by a labouring man in an American town, who passes for a sober citizen. As he walks out in the morning he takes what is called a *small* glass (half a gill) of bitters, gin, or something of the sort, at the first grog-shop he passes; and commonly takes a second whet (another half gill) before he gets to work. Generally he takes two more of these *small* glasses of raw and clear stuff (amounting to another gill) as he returns home to get his breakfast. Thus a half pint is disposed of before eight o'clock A. M.

On going out from breakfast he takes a *large* glass, or a whole gill; and in the middle of the forenoon another. To this is added a third as he comes home to eat his dinner. This amounts to three gills between eight and twelve o'clock.

He drinks another *large* glass as he goes out to work, at or before two P. M. another in the middle of the afternoon; and a third on returning from work at six or after; making three gills more by the time his day's work is ended.

The daily quantity of distilled spirits consumed by one of these persons is as follows:

Before breakfast	2 gills.
Before dinner	3
By the time day's work is done	3

Total, 8 gills,

or one quart of distilled spirits, consumed by a single labouring man in a day, besides what he drinks in porter-houses, clubs and other meetings in the evening: and the greater part of them can still keep about, and do their work, without being actually drunk. By degrees, however, it overcomes them, and they yield to the repeated and excessive stimulus of their strong draughts.

The retail cost of these doses of spirits is a heavy tax upon the individual, and amounts to as much as would buy his family bread, butter and sweetening.

Morning drams, four half gills, at 3d.	1s.
Grog before noon, three gills, at 6d.	1 6d.
Grog after noon, do.	1 6

4 shillings,

or half a dollar a day, spent out of his wages for rum, to be swallowed to his own ruin, and to the pinching and impoverishment of his family. There are hundreds of men who go on at this rate of drinking as long as health and money hold out. In the city of New-York there are houses where strong liquors are thus retailed. Alkohol seems to be a greater curse to Christians than opium to Turks.

Observations on the Barbary Coast; communicated to Dr. MITCHILL, by Dr. GEORGE DAVIS, Surgeon to the American Fleet.

I have been in Tangiers, but can offer few remarks on the place. The plague prevailed in this town, a few years since, with much mortality. If it proves epidemic in Tangiers, with

all the advantages of its local situation, its commercial intercourse with the adjacent countries, as also its being the residence of all consuls, who ought to be supposed to have some influence with the police of the country, particularly as it relates to the general health; the other dominions of the Emperor of Morocco will always be harassed, in a greater or less degree, by this child of filth and nastiness.

The lower class, who are indeed three-fourths of the inhabitants, contrary to the injunctions of Mahomet, neglect, in a most beastly and filthy manner, their persons, as it respects cleanliness; a woollen waistcoat, with a haick, or a coarse woollen frock belted round, being their only dress, and which, I am told, is often worn without shifting until the ravages of time save them the trouble of removing it. The mode of building their houses, which are low, without any windows, and communicating one to the other from the roof, must have its influence.

The streets are narrow throughout all Barbary, and the receptacle of every species of filth and nastiness. The extreme poverty and indolence of the people, together with the miserable diet on which they subsist, must prove powerful agents in the production of this disease, which, once set in action, is greatly assisted by what they conceive the only means of arresting its progress.

YELLOW FEVER.

The difficulty of obtaining correct information from the more distant parts of the United States, has made it necessary to postpone till the present time our account of this disease, as it appeared in various places in the summer and autumn of 1802.

From the account of yellow fever at Charleston (S. C.), given by Dr. Ramsay, in his "Medical Register" for that city during the last year, it appears that it was confined to strangers exclusively; that few were affected with it before the month of September; that there was no ground to suppose it was either imported or contagious; that no physician, nurse, or other attendants on the sick, caught the disease; and that, among the strangers who were so susceptible of the disease, there was no evidence of its being communicated from one to another. The number and other circumstances of those who died of this disease in the course of the season, are thus stated by Dr. Ramsay:

"The whole number of deaths, in the four months already

mentioned, from the yellow fever, was ninety-six. Of these, two took place in August, sixty-four in September, and thirty in October. In the whole number there was not a single native of Charleston, though five of them were born in South, and one in North-Carolina, twenty-one were born in England, twenty in the Northern States, nineteen in Ireland, eight in Germany, seven in Scotland, five in France, one in Spain, one in Prussia, and one in Madeira. The birth-place of the remaining seven could not be ascertained. There was not a single black, and only one mulatto, died of this fever. One of the subjects to whom it proved fatal had resided three years, partly in Charleston, and partly on Sullivan's Island. One had resided two years, two a year and a half, and eighteen for eleven or twelve months, in Charleston. The residence of the remainder varied from eight months to six days."

We are still unable to give a satisfactory account of this disease, as it prevailed at Baltimore. We have assurances, however, from a respectable physician of that city, that this epidemic shall be the subject of a special communication, which may be expected in some future number.

At Wilmington, in the State of Delaware, this disease seems to have prevailed more, and to have caused a greater number of deaths, in proportion to its population, than in any other town in the United States. In the department of Review we gave a pretty full account of Dr. Vaughan's pamphlet on this subject. The facts, which are so well stated and illustrated by him, leave no doubt, in every impartial mind, that the disease arose from domestic causes, and owed its propagation to the influence of the atmosphere, vitiated and replete with poison within certain local limits. According to him, the whole number of deaths amounted to eighty-six.

In Philadelphia the prevalence of this disease was partially experienced during several of the summer and autumnal months; scarcely, however, to such extent as to deserve the name of an epidemic. From the remembrance of former sufferings, great alarm and dispersion of the inhabitants ensued, and the course of business in the city was chiefly suspended for many weeks. The disease made its appearance early in July, and in the northern extremity of the city. The situation of the spot where it was first discovered is a low wharf, so depressed as to be overflowed at every flood-tide, and most of the adjacent buildings are old and small. After continuing some time, the frequency of the disease abated so far as to give hopes of its entire extinction; but with an

unfavourable change of weather it was reproduced, and spread to a much wider extent. A few days of hot weather, whether humid or dry, were uniformly observed to be productive of many new cases; while a change to a cooler temperature as certainly diminished the number. At the coming on of frost, as on all former occasions, a sudden disappearance of the disease took place.

It is supposed that about 250 persons died of this malignant disease. From the middle till near the close of October, a high degree of malignity was observed in a great majority of the cases which occurred. We are assured, on the best authority, that the most powerful remedies were never found to be more ineffectual, and that the proportion of mortality to that of disease was much greater than had ever been witnessed in the former periods of pestilence in that city.

As on former occasions, the origin of this disease at Philadelphia was a subject of warm controversy. The contagionists and importers generally agreed to ascribe the introduction of it to the *St. Domingo Packet*, a ship which had recently arrived from the West-Indies, and on board of which two persons had died on the passage. But this vessel lay twenty days at the Lazaretto, where she was thoroughly cleansed and purified, by washing, scrubbing, ventilating, fumigating and white-washing, and where all suspicious clothing and bedding were removed, before she was permitted to enter the port. No person who worked or staid on board of her, after her arrival, was taken sick.

So far as the effluvia of a vessel may be supposed to have been concerned in producing cases of this malignant disease, there is great reason to impute mischief to a brig called the *Esperanza*, which had lain in port upwards of nine months, and was found to emit a very offensive smell. A ship-carpenter who worked on board of her was the first victim to the disease; and many other cases soon afterwards appeared in the neighbourhood where she lay. She was ordered away from that part of the city where she had so long lain, and in the subsequent course of the season was permitted to be moored at a wharf in two other situations. Cases of malignant fever soon appeared at the wharves where she touched, though perfect health had previously existed in both these places. Thus was there an occurrence of yellow fever at three different points of the city in connection with the station of this vessel, which, by lying so long in port, and being so much neglected with respect to cleanliness and ventilation, had become a source of poison and death.

By the information of a medical friend in Boston, we learn that in that town "the yellow fever was not noticed, nor did it become alarming, until the latter end of August: from this time it more or less prevailed through September into October, and with greater malignity than in any former year, equalling the worst species of genuine plague; yet the range of the disease was quite limited, and the number of cases and deaths comparatively small—perhaps not exceeding sixty. No strength of action or high excitement marked the early stage; on the contrary, it commenced in debility, which increased with the progress of the disease till it terminated in death—more commonly on the third day—seldom so late as the fifth: indeed the patient might be said to be dying from the moment of seizure. The venous congestion was very apparent from the bloody suffusion of the eye, from the cadaverous appearance of the countenance, and from the livid tinge of the whole surface of the body and limbs; the cuticular vessels, and those of the adipose membrane, being loaded with putrid blood. But the face was neither bloated, nor the body in any part swollen, notwithstanding there was this evident plethora of the smaller veins, owing to a condensation of the fluids, and a collapse of the arterial vessels, from deficiency of animal heat, and want of the natural stimulus, oxygenated blood. The escape of heat was gradual from the extremities towards the centre of circulation, till respiration ceased entirely, when no warmth could be perceived but round the heart. The lungs, indeed, early in the disease, seemed to have lost the power of oxygenating the blood, and thus was the sensorium deprived of that important ingredient which preserves the nervous energy, and supports the irritability of the muscular fibre. This circumstance alone accounts for almost all the appearances and symptoms of the disease; viz. the universal torpor of the vascular system, obliterated pulse, blood dark coloured and putrid, secretions deranged, sensations deadened or much impaired, &c. &c. I have been thus particular in stating some of the leading characteristics of the disease, thinking it may not be unimportant to notice their variations in different seasons. But were I to be still more particular, there would yet remain an indescribable something in the appearance of the patient, known only by having seen and attended him. In this year the disease commenced with the symptoms of the second stage of the disease, as it appeared in 1796 and 1798; though there was less derangement of the intellectual faculties, and the vomit rather

resembled thin treacle in colour and consistency, and had none of the dark-coloured coagula which have been commonly compared to the settlings of coffee.

"How or whence the disease originated is not clearly ascertained, and probably never will be, though vulgar prejudice and a blind credulity find no difficulty in ascribing it to a foreign source. It was, as has been observed, very limited in its extent, being wholly confined to houses promiscuously situated at the heads of wharfs in the south part of the town; and it was remarkable, that if a patient under the disease was carried out of the range of the morbid atmosphere into a healthy part of the town, and attended by persons there resident, the disease was not communicated in a single instance; but not so if he remained on the spot where he took the disease: the attendants less rarely escaped. None of the physicians took the disease, for none resided within the infected atmosphere. The sickness of 1796 first appeared where it prevailed this season.

"*Treatment.*—Alas! the power of medicine, the skill and best efforts of the physicians, were equally unavailing. Whether the customary treatment was adhered to, or a new method adopted, it was alike to the patient: his death was inevitable.

"On this occasion the conduct of the Board of Health merited the highest praise. It was spirited, decisive and judicious. By their timely exertions many lives were saved, and much general calamity prevented. They had an exact knowledge of the number of the sick, and obtained the earliest information of every recent case of infection. They attended in person, and where it was practicable the patient was removed from the infected atmosphere into some suitable healthy situation, proper attendants provided, and every humane attention afforded. The vacated tenement was immediately cleansed by a liberal use of alkaline ley, the walls white-washed, and the filth and nastiness removed. In short, personal danger seemed wholly absorbed in a superior solicitude for the security of the general good and safety."

We learn also from a Medical gentleman at Portsmouth, that "the malignant fever made its appearance in that town the last of July, and spread terror and consternation through the town for about four weeks; during which time not more than a dozen persons were infected with it, most of whom died. The disease was more malignant than we have seen it heretofore, sooner tending to putrefaction.

"The origin of the fever cannot be unexceptionably traced to any particular source. There are those amongst us who

advocate its importation; while others think it arose from our own filthiness.

"On the 12th of July a brig arrived from Jamaica that had lost most of her hands at that island with the fever; but at the time of her arrival she had no sickness on board. She passed Fort Constitution by a false answer, and came to the town. Before the fraud was discovered, and an order made out for her to perform quarantine, she was aground, and could not be removed till flood-tide. She performed quarantine, was scuttled and filled with water, and otherwise purified.

"Not half the persons who had the fever were ever on board or near her: neither was an hundredth part of those who were on board, and by the side of her, infected. Many people flocked to see her on the report of her being an infected vessel. The fever was mostly confined to that part of the town where the brig came to anchor.

"Previous to, and for some days after the arrival of the brig, the town was quite free of bilious complaints; but all at once they increased enormously; so that most complaints were of that type."

On a review of all the facts on this subject which have come to our knowledge, we consider the last summer and autumn as having been generally very favourable to the cities of the United States. The constitution of the atmosphere was such, in most places, as to give little disposition towards the origin and spreading of malignant diseases. Hence the ravages of the yellow fever were inconsiderable in several places where it undoubtedly appeared, and where the dispersion of the inhabitants was not great nor early enough to account for the small number of the victims.

The doctrine of importation and contagion has lost much ground by the impression of these facts. The important and radical distinction between febrile poison generated in a vessel from filth and putrefaction, and that which is derived from a foreign country, and communicated, by transfer of contagion, from person to person, is daily becoming better understood, and more generally adopted by the people. And when the generation, nature and operation of this febrile poison, thus produced on board of vessels, shall have been more completely developed and comprehended, we entertain no doubt that the community will universally embrace the opinion that the West-India Islands are unjustly accused of transmitting to us the contagion of fever; as vessels going from our ports may breed the mischief in precisely the same manner as vessels arriving here from St. Domingo, Jamaica, or other islands.

BILL OF MORTALITY FOR PORTSMOUTH (N. H.) FOR 1802.

By LYMAN SPALDING, M. B. &c.

Complaint.	Age.	No.
Aptha.	4, 4 weeks.	2
Apoplexy.	66, 33, 55, 43, 63 years.	5
Atrophy.	55, 69, 40, 55 years. 3 m. 60 years.	6
Cancer.	55, 63, 60 years.	3
Canker-rash.	8, 2, 5, 7 months. 2, 16, 23, 4 y.	8
Cholera of Infants.	6 to 24 months.	13
Colic, Bilious	42 years.	1
Consumption.	14, 74, 53, 47, 53, 30, 69, 17, 33, 30, 60, 14, 33, 18, 69, 64, 60, 33, 28, 48, 52, 18, 29, 50, 63, 28, 22, 30.	28
Debauchery.	55, 38 years.	2
Dropsy.	69, 50, 84, 52, 89, 24 years.	6
Dropsy in the Brain.	3, 7, 7, 8, 13 years.	5
Dysentery.	3, 2, 2 years.	3
Epilepsy.	64, 2, 2 years.	3
Fever and Ague.	33 years.	1
Fever, Bilious	74, 30, 27 years.	3
Fever, Bilious Malig.	44, 31, 41, 13, 35, 21, 30, 40, 30, 13 y.	10
Fever Pulmonic.	65, 45 years.	2
Gout.	52 years.	1
Gravel.	41 years.	1
Hooping-Cough.	10 weeks to 1 year.	8
Infantile Complaints.	6 days. 4 weeks.	2
Measles.	7, 1, 20, 4, 9 m. 2, 7, 1, 2, 1, 2 years.	11
Mortification.	7 months. 1 year.	2
Old Age.	94, 90, 78, 76 years.	4
Palsy.	60, 74, 64, 50 years.	4
Phrenitis.	30, 12 years.	2
Premature Birth.		6
Quinsy.	3 years.	1
Scald Head.	1 year.	1
Small-Pox, natural	33 years.	1
Small-Pox, inoculated	1 year.	1
Casualties. { Drowned.	48, 60 years.	2
{ Fall.	55 years.	1
{ Frozen.	82 years.	1
{ Poison by Opium	4 months.	1
{ Suicide.	32 years.	1
Total.		152

Portsmouth, situated 43 deg. 5 min. N. 70 deg. 41 min. W. from London, contains about 5600 inhabitants. The town has been very unhealthful; some epidemic having raged the whole year. The hooping-cough, in January and February, was very prevalent; and some sporadic cases continued till September. The measles made its appearance about the middle of March, and was very prevalent till July; at which time a bilious malignant fever made its appearance, and continued till August, when the cholera and canker-rash commenced, and continued through the year.

AMERICAN SLATE FOR COVERING HOUSES.

A quarry of *shistus tegularis*, or slate fit for roofs of building, has been opened in the town of Rhinebeck, in Dutchess county, State of New-York. Its quality is found to be excellent; and its quantity is greater than supplies the demand of the fast-growing city of New-York, where the law directs houses to be built fire-proof. A company is engaged in working it, and is able to supply foreign customers with the surplus of the slate employed at home. Until this discovery, all our slate was imported, chiefly from Great-Britain; but now there is not only a sufficiency for home manufacture, but for the supply of our neighbours and more distant dealers. In the course of a short time the slate will be delivered to them at the company's wharf at Rhinebeck, on the bank of the Hudson; and be easy of transportation by water wherever the purchaser pleases.

SOCIETIES.

Within the last twelve months Dr. Mitchill has been chosen corresponding member of the following societies, viz. Of the Agricultural Society of the Bahama Islands, whose meetings are held at Nassau, in New-Providence; 2. Of the Farmer's Society at Sandy-Spring, in Montgomery County, Maryland; 3. Of the Culpepper Society for promoting Agriculture and Manufactures, whose meetings are held at Stevensburg, in Virginia; and, 4. Of the Society of the Antiquaries of Scotland, whose assemblies are held at Edinburgh.

AMERICAN BOARD OF AGRICULTURE.

A number of respectable and patriotic citizens, including a considerable portion of the members of both houses of Congress, on the 22d of February, 1803, impressed with a clear conviction that numerous consequences highly promotive of the prosperity and happiness of the United States as a nation, and of its citizens individually, would result from a general diffusion of practical knowledge in agriculture and domestic manufactures, entered into an association for this purpose, under the name of the *American Board of Agriculture*.

For its more complete organization, the board adopted a *Constitution*, and elected the following *officers* to serve until the next meeting, which is to be near the commencement of the ensuing session of Congress, when a general election will take place.

JAMES MADISON, Secretary of State, *President.*

SAMUEL L. MITCHILL, } *Vice-Presidents.*
GEORGE LOGAN, }

ISAAC BRIGGS, *Secretary.*

JOSEPH NOURSE, *Treasurer.*

Committee of Correspondence.

Abraham Baldwin,	}	Georgia.
David Meriwether,		
Thomas Sumpter,	}	South-Carolina.
Benjamin Huger,		
David Stone,	}	North-Carolina,
Richard Sandford,		
William Cocke,	}	Tennessee.
William Dickson,		
John Breckenridge,	}	Kentucky.
Thomas T. Davis,		
Wilson C. Nicholas,	}	Virginia.
Philip R. Thompson,		
John Randolph,	}	Maryland.
Robert Wright,		
Joseph H. Nicholson,	}	Delaware.
William H. Wells,		
Cæsar A. Rodney,	}	Ohio.
Edward Tiffin,		
Thos. Worthington,	}	Pennsylvania.
Samuel Maclay,		
Andrew Gregg,	}	New-Jersey.
Jonathan Dayton,		
Ebenezer Elmer,	}	New-York.
De Witt Clinton,		
John Smith,	}	Vermont.
Stephen R. Bradley,		
Israel Smith,	}	Connecticut.
James Hillhouse,		
John C. Smith,	}	Rhode-Island.
Theodore Foster,		
Joseph Stanton, jun.	}	Massachusetts.
John Q. Adams,		
Joseph B. Varnum,	}	New-Hampshire,
Peleg Wadsworth,		
Samuel Deane,	}	
Simeon Olcott,		
Samuel Hunt,	}	

Meriwether Lewis, Territory of Columbia.

W. C. C. Claiborne, Mississippi Territory.

E. H. Harrison, Indiana Territory.

Any citizen who may have it in his power to communicate information on the subjects of agriculture and domestic manufactures, or on the auxiliary arts or sciences, is respectfully solicited to forward it to some member of the committee of correspondence.

NEW MEDICAL PUBLICATIONS.

It gives us pleasure to announce, that Dr. Mease, of Philadelphia, is now engaged in publishing an American edition of Dr. Willich's *Domestic Encyclopædia, or Dictionary of Facts and useful Knowledge*. This work is designed to exhibit a concise view of the latest discoveries, inventions and improvements which are applicable to rural and domestic economy: together with descriptions of the most interesting objects of nature and art; the history of men and animals in a state of health or disease; and practical hints respecting the arts and manufactures, both familiar and commercial. The several subjects are illustrated with numerous engravings and cuts. Dr. Mease will enrich the work with many additions, applicable to the present situation of the United States, and will comprise the whole in five large 8vo. volumes.

We have just received from Professor Waterhouse the *second part* of "A Prospect of exterminating the Small-Pox; being a Continuation of a Narrative of Facts concerning the Progress of the new Inoculation in America; together with Practical Observations on the Local Appearance, Symptoms, and Mode of treating the *Variola Vaccina*, or *Kine-Pock*." This important publication will be more particularly noticed in our next number.

Dr. Thomas Dancer, of Kingston, in the island of Jamaica, the respectable author of the "Medical Assistant, or Jamaica Practice of Physic," reviewed in our vol. v. p. 432, has lately transmitted to us a small pamphlet, written by himself, entitled "Strictures on Dr. Grant's Essay on Yellow Fever;" of which we intend hereafter to give some further account.

FOREIGN.

ON PSORA.

OBSERVING, in your valuable Journal, Mr. Ring's observations on that cutaneous eruption termed Psora,* induced me to make a few remarks on the same subject, having experienced, in many instances, the ill effects of the external application of corrosive sublimate in this, as also *many other* cutaneous affections, by frequently inflaming and excoriating the cuticle where applied, rendering the remedy much more tedious and painful than the disease. Although I have seen good effects from the application of Mr. Ring's ointment in several trials, still it is liable to the same objection. Confident of this, and to obviate every inconvenience arising from irritation, was my sole motive for introducing the following formulas and plan of treatment, which I have invariably pursued with success beyond expectation.

No. 1. ℞. Calx Hydrar. Alb. ʒ ij. Ceruss. Acetat. Kali. pp. aa. gr. x. Ung. Simpl. ʒ ij. M. cum Essent. Bergam. et Lavend. aa. gtt. xx. ft. Linm. omni noct. utend. h. s.

No. 2. ℞. Calx Hydrar. Alb. ʒ j. Calomel pp. ʒ j. Lac Sulph. ʒ ij. Eessent. Lavend. & Bergam. aa. gtt. xxv. Adip. Suillæ ʒ ij. M. applicetur omn. noct. h. s.

The preparation of sulphur, in this latter liniment, is devoid of that disagreeable smell which generally accompanies the other preparations of this kind, and seldom predominates: they are very neat applications; and it is rarely necessary to apply them more than two or three successive times, before a perfect cure is obtained.

In cutaneous and scurfy eruptions of the head, and extending behind the ears, frequently observed in infants, where a thin ichor sometimes pervades the cuticle, and almost excoriates when it is suffered to remain, I have found the following liniment, as a general application, of considerable utility, and seldom fail of effecting a radical cure.

℞. Creta pp. Calx Hydrar. Alb. aa. ʒ j. Ceruss. Acet. ʒ j. Ung. Hydr. Nitrat. ʒ ij. †Unguent. Pice ʒ ij. M.

* See Medical Repository, vol. vi. p. 102.

† If this liniment is found too hard, a little olive oil may be added; or, if tar ointment should be objected to, on account of its colour or smell, lard may be substituted.

Although I am extremely averse to precise formulæ, yet cannot avoid recommending the above, the efficacy of which is surprising, when regularly applied: it absorbs and corrects the acrid virus, whether from a venereal taint, or any other acrimonious eruption, so frequently to be observed in children, particularly on the head. It should be applied every night, covering, at the same time, the parts with a bladder, or linen; and washed off in the morning with soap and water.

Alterative medicines are sometimes necessary to be administered at the same time; and of those, small doses, and such preparations as are not likely to pass by stool.

℞. Hydrar. cum Sulph. Magnes. Calc. aa. g. v. M. ft. Pulv.

Or a quarter or half a grain of calomel, given every, or every other night, may answer the purpose equally well, as the practitioner may think proper. The doses must be varied, according to the age, constitution, &c. of the patients; and, if acidity abounds in the first passages, should be combined with absorbents, such as creta or magnesia, as the bowels may be more or less affected. It will be necessary to observe, that the bowels must be kept gently open. N. G.

[*Med. and Phys. Journal.*]

Observations on Antipsoric Preparations, in Reply to the above; communicated by Mr. JOHN RING, Surgeon.

When I communicated a remedy for a loathsome disease; which has stood the test of twenty-five years experience, and not failed in a single instance, I added a caution concerning its use, to prevent the only inconvenience with which it is attended. This caution, if observed, renders it as safe an application as any other of equal efficacy in the whole circle of medicine.

An anonymous Author of a Letter in the last Number of your Journal, has expressed a dislike to the formula, because he has seen unpleasant effects produced by the external application of hydrargyrus muriatus in cutaneous diseases. Who has not seen unpleasant effects from the use of every powerful medicine, whether employed externally or internally? If the abuse of a remedy is to be considered as an argument against its use, bark, opium, and mercury must be banished from the *Materia Medica*; and any man who gives antimonial powder in a fever, or antimonial wine as an emetic, ought to be condemned to the galleys; as he would have been two hundred and fifty years ago, had he dared to commit that crime at Rome.

Lotions, in which hydrargyrus muriatus is an ingredient,

are very apt to inflame and excoriate any tender part; and it was this circumstance that first suggested to me the idea of using it in an unctuous form.

Your Correspondent strains at a gnat and swallows a camel. He objects to the external use of sublimate, because he has seen it, when incautiously applied, produce inflammation of the skin, and excoriation; yet recommends calomel to be exhibited internally; a medicine which, however valuable in some cases, is in cutaneous complaints unnecessary; a medicine which has sent many a victim to an untimely grave.

Your Correspondent has been more fortunate than I ever was, in commonly curing the itch by two or three applications of white precipitate. He has also been more fortunate in correcting the unpleasant and disgraceful smell of even that preparation of sulphur which he recommends. It is, however, only justice to the inexperienced practitioner, to put in a caveat against his placing too much confidence in the result of your correspondent's experience. Had not the mild preparation, so highly extolled by your Correspondent, frequently failed in my practice and that of others, even when persisted in for a much longer period, I should never have thought of employing what was likely to be attended with the least hazard, even to the most superficial part of the human frame.

Your polite attention to my former request, and your ready insertion of the memoir which I transmitted, claim the performance of the promise I then made.

The cure of gonorrhœa is rendered much more safe, pleasant and expeditious, by the use of injections; which are now universally employed by the most expert practitioners. Nevertheless, the best formula for that complaint in general, is, with regard to the majority of medical men, still a desideratum.

The following was communicated to me several years ago, by a gentleman not of the profession; who informed me, that having been peculiarly unfortunate, and often under the necessity of having recourse to remedies of this kind, he found it much more efficacious than any other which he had employed.

R. Calomel. pul. gum. Arab. a. 3 ij. Aquæ 3 vijs. M.

It would be wrong to deny that this composition sometimes proves too stimulating; an objection to which every remedy is liable in proportion to its efficacy. No man, however, ought to practice physic or surgery who is not a judge of the cases in which the injection ought to be used in a milder form; and of the means necessary to subdue the symptoms, which arise from its improper use.

Calomel, exhibited internally in this complaint, has been the death of thousands. I hope, in this enlightened age, we shall see that practice quite exploded. To this end, so devoutly to be wished, as well as to a general reform in the practice of physic, an Herculean labour, for which the united talents of all the members of the medical profession are required, no Publication has contributed more, or is likely to contribute more, than your own.

If any internal medicine is administered, perhaps no one is more proper than the following:

℞. Nitri purif. 3j. Pul. Gum. Arab. Sacchari a. 3 ss. Hydrarg. Sulph. Rubri gr. vj. M. Divide in pul. vj. quorum capiat j. in aqua omni mane.

—Si quid novisti rectius istis,
Candidus imperti; si non, his utere mecum.

[*Ibid.*]

NEW REMEDY FOR GOUT.

We present the following intelligence to our readers in the words of the publication from which it is taken. It is unnecessary to observe, that, if verified by longer and more extensive experience, it must be exceedingly interesting to obtain more ample details on the subject.

In the activity of research, and the great accessibility of men's minds to reason, which distinguish the present times, it is not to be expected that an affection (gout), bearing a great analogy to complaints which we have already learned to treat with success, should be passively submitted to, as of old. I am fortunate enough to have it in my power to offer a reasonable expectation of relief. Something less than a twelvemonth ago, an entire stranger offered me an anti-arthritic remedy of a character entirely new. He said it was prepared from a vegetable, which had not been introduced into any *materia medica*. It was described as having the property of dispelling the fits of gout with as much gentleness of operation as the bark exhibits against intermittents, and as having been in use several years with great benefit to the constitution, and almost total reduction of the disease upon the whole. I received a number of references to persons who had tried it with success. The discoverer also acquainted me with the name of the plant. He added from Dr. Bradley, the well-known editor of the Medical Journal, an attestation, purporting that the preparation would "speedily and *safely* remove the pain of gout."

On laying this statement before gouty invalids, I found

some willing to hazard a trial. In no instance has the smallest untoward appearance shown itself, though some of my patients have been mere human ruins, threatening to fall at the moment of approach, and certain to be overturned by even a slight shock. The gouty symptoms have, in general, been removed with the greatest ease and rapidity. Many of those who have taken the remedy speak with a warmth of enthusiasm, which is unusual except after some great deliverance. The disease has been sometimes, at once, dislodged from the interior; and it seems as if, by stopping at a certain dose, worn-out invalids might have what is called a healthy fit. I have been struck with surprise at the signs of improved health at the end of six months after the *occasional* use of the medicine: for it has been seldom given, and seems only necessary at the time of the fit. In the mean time the experience of Dr. Bradley has been equally favourable. There lies before me a note, in which he declares himself to have used the anti-arthritic medicine in several cases of gout as well as obstinate rheumatism. "It gives," he adds, "great relief to the patients, and generally seems to produce a perfect cure:—he has never seen the slightest ill effect arise from its exhibition; and he has reason to believe, from a case or two, that it will prevent a fit of gout as well as cure one." If the medicine shall continue to justify its pretensions, the discoverer expresses himself ready to disclose his secret, on obtaining a compensation adequate to the benefit he shall thus confer on society. In a very few months, he informs me, it is his intention to bring the whole subject before the public. [*Beddoes' Hygæia*, vol. ii. p. 161.

Mr. BLAIR, an eminent Surgeon in London, has lately issued proposals for publishing "An Entire System of Medical and Operative Surgery;" comprising the latest improvements in theory and practice; with numerous engravings of surgical diseases, operations and instruments.

Mr. Blair offers the following Account of the motives and plan of this new work.

"It is not without extreme diffidence that Mr. Blair proposes to publish a complete system of doctrines and practical rules for the guidance of young surgeons: he is fully aware of the many obstacles attending the execution of this design. Such an undertaking has been long thought, by our most distinguished practitioners, to be an important desideratum: notwithstanding the commendable labours of Mr. Benjamin Bell, of Edinburgh, whose work is entitled to all the encouragement

it has received. That publication appeared when no other British system of surgery existed: it was, therefore, highly probable it would meet with a favourable reception among Englishmen: but it is much to be regretted that the successive editions of that work have altogether omitted what continental surgeons deem valuable improvements in the healing art; nor has sufficient justice been done, either to our memorable predecessors, or to the actual state of surgery in London.

It has, for some time, been in the contemplation of certain practitioners in this metropolis, to supply these deficiencies; and a public intimation of their design was given about the beginning of last year; but, in the interim, a new and magnificent quarto volume has been published at Edinburgh (price four guineas), which is soon to be followed by another, entitled "*The Principles of Surgery.*" One of the chief defects of surgical writings, however, has not been supplied by the author; for he passes too lightly over a very important, but much neglected, branch of the profession, *i. e.* MEDICAL SURGERY: not to mention that the expensive form of Mr. John Bell's splendid volumes is an insuperable bar to their general circulation. On all these grounds, Mr. Blair now announces his design of attempting (in conjunction with several of his friends) to accomplish a work which, he hopes, will tend to the advancement of surgical knowledge, and to the credit of its professors.

Although the difficulties which attend the completion of this project are considerable, Mr. Blair trusts he shall, in some measure, be able to surmount them, from the opportunities he has enjoyed, of superintending twelve or fourteen hundred surgical patients annually—from his immediate intercourse with the most celebrated surgeons of this extensive metropolis—from his correspondence with various intelligent persons on the continent—from the valuable collection of foreign books and engravings he has already received—from having long had access to the most admired records of antiquity—and from the friendly assistance he shall derive from his contemporaries, in different parts of the united kingdom. As to the systematic arrangement which is intended to be adopted, Mr. Blair proposes to begin with the most general and obvious principles; having first premised a few remarks on the education and duties of a surgeon. He is of opinion that the best practical arrangement of local diseases will be to treat of them according to the structure or situation of the parts affected, without regarding the scientific classifications of nosologists; for instance, on diseases

of the arteries, veins, lymphatics, nerves, muscles, bones, integuments, &c. after which may be introduced the disorders of particuler organs and viscera, as the eye, the brain, the lungs, the genitals, &c. concluding the whole with those affections which depend more or less on a vitiated state of the fluids, viz. the yaws, leprosy, pellagra, elephantiasis, tinea, hydrophobia, cancer, scrofula, syphilis, cow-pox, &c. &c.

LONGEVITY.

Sir JOHN SINCLAIR, in his *Essay on Longevity*, wishes the following questions to have an extensive circulation, and invites all persons, as far as their experience and observation will admit, to answer them with minuteness and accuracy.

1. What is the effect of the climate in which you reside, on the health and longevity of the human race?
2. What form is reckoned most conducive to health and longevity?
3. Is it found, that being descended from young and from healthy parents is essential for good health and old age?
4. Is it found that health and old age depend much on the disposition or temper of the individual?
5. Is there any perceptible difference in consequence of situation of life?
6. What professions are reckoned favourable to longevity, or otherwise?
7. Is exercise and moderate labour found necessary for preserving health and long life?
8. Have the long-lived, in general, been in the marriage-state?
9. Have the greatest proportion of the long-lived consisted of males or females?
10. Have there been any instances of persons renewing their age, getting new teeth, new hair, &c.
11. What are the other circumstances tending to promote long life?
12. What is the effect of diet on health and longevity?
13. What are the effects of cloathing?
14. What the effect of habitation, and the difference of living in a town or in the country?
15. What are the effects of habits and customs in regard to early rising, bathing, regular meals, regular sleep; and, in particular, what are those minute circumstances on which it is supposed that health and longevity principally depend?
16. What are the rules regarding medicine which are accounted the most useful and salutary?

17. What are the most remarkable instances of longevity, and how are they authenticated?

18. What are the rules adopted by those who have attained great age?

19. Have any tables of longevity been drawn up in your neighbourhood, and how do they agree with the one extracted from Hufeland?

20. Do any additional observations or particulars occur to you on the subject of health or longevity?

[*Med. and Phys. Journal.*

GALVANISM.

Citizen GUYTON, member of the National Institute, and Director of the Polytechnic School, read at the meeting of the Institute, held 7th Fructidor, a Memoir, entitled *Researches on the Electric Pile of Volta*, by Citizens Hachette and Desorues, Professors in the Polytechnic School.

This memoir contains two important facts, which tend to throw much light on the theory of electricity; the first is, that an isolated electric pile, or a friction machine of Nairn, positive and negative, and also isolated, that is, only communicating with the atmosphere, is an inexhaustible source of electricity. The second fact is, that many solid and dry substances, such as pure starch, or starch impregnated with different salts, may supply the moist substances of the pile of Volta, and allow of a mode of constructing piles, which, by the simple action of substances placed above, become the constant and inexhaustible sources of electricity.

[*Ibid.*

PRIZE DISSERTATION.

The Institute of Health, of Gard, at their meeting at Nismes, have offered for the eleventh year, a gold medal of the value of 300 livres, for the best dissertation on the following question: "Are there any physical or chemical means of destroying the dangerous emanations which exhale from marshes, or from ground newly drained, and of preserving from its influence those who are exposed to them?"

[*Ibid.*